

BULLETIN
OF THE
AMERICAN IRIS SOCIETY

NOVEMBER, 1945

No. 99

C O N T E N T S

Editor's Bulletin Board.....	1
After Three Years, <i>Dr. Franklin Cook</i>	3
Officers Re-elected	9
Mystery of Soft Rot, <i>Jesse E. Wills</i>	10
Propagation of Louisiana Iris, <i>Ira S. Nelson</i>	14
Iris in Weather Gone Awry, <i>Ralph M. Schroeder</i>	21
Presby Memorial Garden, <i>C. H. Caldwell</i>	25
Review of the Season, <i>Mrs. Ralph E. Ricker</i>	28
Lesser Known Iris, <i>Dr. George M. Reed</i>	37
Iris Through the War in Italy, <i>Countess Senni</i>	48
Iris Genetics, <i>A. H. Sturtevant</i> and <i>L. F. Randolph</i>	52
Iris Ratings, 1945	66
Comments on Varieties	70
Our Members Write:	
Favors Test Gardens, <i>Dr. Lewis Clevenger</i>	92

Published Quarterly by
THE AMERICAN IRIS SOCIETY, 32nd ST. AND ELM AVENUE, BALTIMORE, MD.
Entered as second-class matter January, 1934, at the Post Office at Baltimore, Md.,
under the Act of March 3, 1879.

\$3.00 the Year—Additional copies 50 cents each for Members

THE AMERICAN IRIS SOCIETY

OFFICERS 1945

Directors:

Terms expiring 1945:	F. W. Cassebeer Geddes Douglas	Dr. H. H. Everett Dr. E. J. Graves
Terms expiring 1946:	J. P. Fishburn David F. Hall	E. G. Lapham W. J. McKee
Terms expiring 1947:	Dr. Franklin Cook Carl S. Milliken	Howard R. Watkins Jesse E. Wills

President—Mr. Jesse E. Wills, Belle Meade Blvd., Nashville, Tenn.

Vice-President—Mr. Junius P. Fishburn, Box 2531, Roanoke, Va.

Secretary—Mr. Howard R. Watkins, 821 Washington Loan and Trust Bldg., Washington, D. C.

Treasurer—Mr. E. G. Lapham, 1003 Strong Ave., Elkhart, Ind.

Editor—F. W. Cassebeer, 953 Madison Avenue, New York 21, N. Y.

Assistant Editor—Miss Marcia Cowan.

Regional Vice-Presidents—

1. W. J. McKee, 45 Kenwood Ave., Worcester, Mass.
2. Kenneth D. Smith, Benedict Road, Dongan Hills, Staten Island, N. Y.
3. John Dolman, Jr., 204 Vassar Ave., Swarthmore, Pa.
4. J. Marian Shull, 207 Raymond St., Chevy Chase, Md.
5. T. N. Webb, Durham, N. C.
6. Mrs. Silas B. Waters, 2005 Edgecliff Point, Cincinnati, Ohio.
7. W. F. Cahoon, R 4, Cahaba Road, Birmingham 9, Ala.
8. Mrs. W. F. Roecker, 3319 North 14th St., Milwaukee, Wis.
9. O. W. Fay, 1522 Isabella St., Wilmette, Ill.
10. Frank E. Chowning, 2110 Country Club Lane, Little Rock, Ark.
11. Mrs. Mary F. Tharp, Payette, Idaho.
12. Merritt H. Perkins, 2235 Fairfax St., Denver, Col.
13. Dr. R. E. Kleinsorge, Silverton, Ore.
14. Mrs. G. G. Pollock, 1341 45th St., Sacramento, Calif.
15. E. E. Nies, 1423 North Kingsley Dr., Hollywood 27, Calif.
16. W. J. Moffatt, 170 Delaware Avenue, Hamilton, Ont., Can.

Chairmen of Committees:

Scientific—Dr. L. F. Randolph, Ithaca, N. Y.

Election—Dr. George M. Reed, Brooklyn Botanic Garden, Brooklyn, N. Y.

Membership and Publicity—W. J. McKee, 45 Kenwood Avenue, Worcester, Mass.

Registration—C. E. F. Gersdorff, 1825 No. Capitol St., Washington 2, D. C.

Ass't. to Registrar—Mrs. Walter Colquitt, 487 Albany, Shreveport, La.

Exhibition—Mrs. Ralph E. Ricker, 1516 Ross St., Sioux City, Iowa.

Recorder of Introductions and Bibliography—Mrs. W. H. Peckham,
The Lodge, Skylands Farm, Sloatsburg, N. Y.

Awards—Junius P. Fishburn, Roanoke, Va.

Japanese Iris—Dr. George M. Reed, Brooklyn Botanic Garden, Brooklyn, N. Y.

IRIS CHECK LIST, 1939—Lists 19,000 names of iris and parentages; over 500 pages. Price \$3.00 to members; \$4.00 to non-members.

LANTERN SLIDES—Rental Fee (to members) \$5.00. Apply to
Mrs. P. E. Corey, 707 Pearl St., Reading, Mass.

THE EDITOR'S BULLETIN BOARD

■ THIS NUMBER of the BULLETIN is in the nature of a swan song for it will terminate the work of the present editor. Since assuming the A.I.S. editorship in the spring of 1940, we have completed 23 issues and now feel that it is time to relinquish our post. We asked the Directors to be relieved of our duties because it became increasingly evident that we could not fulfill our growing business obligations and still have enough time at our disposal to do an efficient job of editing.

We are grateful for the many articles that were so generously contributed by members of the Society during our six years of editorship, and we appreciate the infinite patience of the readers who so graciously tolerated the many delays in the publishing of the BULLETIN, especially during the war period.

Beginning with BULLETIN No. 100, the reins of editorship will again be in the capable hands of Mr. Robert S. Sturtevant, who was responsible for the many excellent issues in the early days of the Society. He will be ably assisted by Mr. Geddes Douglas and since both live in Nashville, they will be able to cooperate closely with our president, Mr. Jesse E. Wills. We feel sure that they will be accorded the same support from the readers that we have always enjoyed.

F. W. CASSEBEER, *Retiring Editor.*



F. W. Cassebeer

Chamois, a recent introduction of Dr. R. E. Kleinsorge, has attracted wide attention.

AFTER THREE YEARS

DR. FRANKLIN COOK

■ THE 1945 iris season was the most exciting one I can remember for a long time. There are no iris on Saipan, nor in the Marshalls, and except for brief glimpses at Mr. White's out-of-this-world oncobreds at Redlands, and Prof. Mitchell's earliest out-of-season tall bearded in April 1944, I had completely missed the iris parade for two seasons. Imagine my delight, then, at returning to see some of the newer iris in colors heretofore unknown to me.

Perhaps distance lends a new perspective, or again it may have been that I had become familiar for the first time in my life with real tropical colors—brilliance unmatched in the North. However that may be, I was glad to find that many hybridizers were hard at work producing *new clear colors* in flowers of considerable substance, excellent form and good branching, instead of bringing out the usual hundreds of mediocre "improvements" over existing varieties that have characterized American introductions for longer than I like to remember.

These notes are being written after visiting, this June, about a dozen large Northern iris gardens, mostly in Regions 6 and 9. I am sure I have missed many noteworthy Eastern and Western novelties which may not yet have become widely distributed. Even so, I feel that I have seen a great many new and outstanding iris which were not generally well known three years ago. After the 1942 season, I collected my notes and wrote in BULLETIN No. 87 a short article on what I considered "My Perfect Iris." What new varieties shall I now add to that select group? Again I shall group them by color.

Whites

White iris, in their purity of color, have always held a strong fascination for me—they may be at once so alike and yet so different. For a low-growing mass of pure alabaster, I have seen nothing to equal PRISCILLA, the whitest of the white iris. PATRICIA and BIRCHBARK make splendid clumps of medium-sized flowers in profuse and well mannered habit, neither sprawling all over the place

nor untidy. SIERRA SNOW, also a very pure white, delightfully ruffled and of medium size, but taller than any of the foregoing, is a bit temperamental, as perhaps becomes a diva, but at her best is still tops in her class. Larger than any of these are three fine flowers that have stood the test of time and have proved themselves super iris—MATTERHORN, WHITE GODDESS and WHITE VALOR, the last quite late. Large clumps of these fine “standard” whites compare well with any novelty in the garden, and I would propose that no new whites be introduced in the future unless they are noticeably superior to these three.

I know of one new white that meets this test—Orville Fay’s NEW SNOW. Huge, full-bodied, stiff and beautifully ruffled, this white bids fair to outdo all others in this class. ALBA SUPERBA, when well grown, might be a keen competitor. SNOW CARNIVAL, COTILLION and FRANCONIA I’ve not seen—nor LADY BOSCAWEN.

The blue-white class of iris is just now emerging into full stature. SNOW FLURRY, although somewhat tender here, is definitely distinct, even if it is top-branched. WHITE CITY (Dykes Medalist 1939) is quite different in form and both larger and better branched. AND THOU has still more blue in beard and style arms. WHITE WEDGEWOOD was one of the most thrilling novelties to greet me when I returned.

I had a dozen blue-bearded whites in my seedling bed this year, but none quite so lovely as WHITE WEDGEWOOD. The contrast of its deep blue beard to ice-white petals is perfectly stunning. The flower is heavy substantced and ripples and ruffles in a delightful manner. The stalk is slender but adequate, and who wants a tree-trunk anyway?

In the creamy whites or yellow-throated whites, I have seen nothing to beat MARY E. NICHOLLS. SNOW VELVET is somewhat larger and a wonderful doer, just as leathery-substantced and taller, but the two can hardly be compared. “Mary” has more gold laid on more smoothly than any other flower in irisdom. ARCTIC is somewhat tender here and I have had to discard it with regret. CAROLINE BURR is fine every other year or so; when she’s good, she’s very, very good, but when she’s bad, she’s an untidy witch. Grant’s FRANK DRAKE is reported a splendid new cream, and Douglas’ AMANDINE, a grand off-white. VISION FUGITIVE is still fugitive from me. I can’t find it anywhere.

Blues

New blues by the dozens are arriving on the scene, and welcome they are—mostly the progeny of GREAT LAKES. Are they bluer than their parent? Well, Jesse Wills' CHIVALRY is—by a great deal! When I first saw, it I could hardly believe my eyes—a fine deep to medium blue, remarkably clear, heavy substanded, ruffled and flaring. What a break! From all reports it is one of the most sought-after iris in the country today, and I would rate it as the most decided advance in clear color I have ever seen. I have not made the acquaintance of LAKE GEORGE, GALLANTRY, SAINT REGIS, BLUE RHYTHM, BLUE VALLEY or HELEN MCGREGOR—all reported to be exceptionally good blues of various depth of hue. Mr. Hall's most knock-out iris of 1945, in my opinion, was a frosty light blue of huge size and classic form: SILVERTONE. Paul Cook had a fine seedling of slightly more silvery tone, and Mrs. Whiting still another. The "true blues" are at last arriving—after decades of effort to remove that purplish tinge all our former "blue" iris possessed. Can this pigment be still further purified by selection and reselection? The last two years have shown more improvement in this respect than the previous twenty!

Yellows

Yellows are "clearing" too. BERKELEY GOLD was one of the most striking iris I saw this year. It seems the fanciers almost passed it by because of its modest introductory price. Grown near such fine yellows as SPUN GOLD and GOLDEN MAJESTY, BERKELEY GOLD made them seem dull, drab and muddy by comparison! With good growth habits, fine branching and vigor, it is by all odds the finest golden yellow self I've seen.

OLA KALA, in a somewhat orange tone, presages an entirely new color for our favorite flower. Till now, our approach to orange has been made from the brown direction, as in NARANJA. OLA KALA is orange-tinted without a trace of brown, and although its plant habits are not of the best, its color is novel and strikingly clear.

In the lemon-toned light yellows, which, by the way, have long outgrown the title of "the ELSA SASS class," MOONLIGHT MADONNA has proved especially fine and is one of my favorite iris. Immaculate is the name for her, and she has none of the faults of "Elsa." Full-bodied, wide-hafted, pure-colored, heavy-substanded, well branched, she embodies all those important qualifications of a good

iris besides the virtue of her frosty lemon coloring. As a foil for orchid and mauve colored iris MOONLIGHT MADONNA is superb. Schreiner's MISTY GOLD, full petaled and ruffled, with gold braiding all along the margins, promises to take a leading place in this important color class. Essig's SOUSUN has been highly praised by those who know quality, and we will watch this iris' performance with interest. I have it planted with DREAMCASTLE and HARRIET THOREAU.

Of the whites, blues and yellows—all showing remarkable advances—top honors (among those I've seen) go to WHITE WEDGEWOOD, CHIVALRY and BERKELEY GOLD.

Pinks

When we come to pink, let me say that I have found that "pink" means a different hue to a rosarian, a peony fancier and an iris breeder. It means a different hue to a doctor, a candy manufacturer, an attorney and an eight-year-old child. Be that as it may, I want to differentiate mainly between pink *selves* of whatever shade of pink, and pink *blends* like DAYBREAK, in which the pink and yellow are discernible as separate colors no matter how much overlapping there is.

In the class of so-called "seashell pinks" heralded by Loomis' SPINDRIFT and No. V-20, Mr. Hall has by combining several pink strains produced a few seedlings that are quite definitely pinker than anything I had seen in 1942. CHERIE and HIT PARADE are two of the newest. Many selves shading towards salmon-pink and on the order of REMEMBRANCE also are showing up along with quite a few that can best be described as "peach" pink. One of the most luscious of these is Fay's No. 44-36 which I expect must be introduced soon, for to see it is to want it badly! A medium-sized flower of exceptional substance and weather resistance, it is a true self of unmarred clarity, both brilliant and refined, a brand new color in iris, and one of the most lovely shades imaginable. Add to this, good branching and height, sturdy growing habits, attractive foliage and a capacity to stand hot sun without fading and we have a new star in the iris world. Planted with the frosty light blues, it will be gorgeous.

Toward the orchid side of pink, Paul Cook has quite suddenly brought this color out of the small-flowered PINK SATIN and IMPERIAL BLUSH class into full-bodied, large flowers of heavy sub-

stance, all in one jump. HARRIET THOREAU and DREAMCASTLE are very, very fine. I prefer HARRIET THOREAU. Orchid pinks have wonderful garden value, and in association with creams and "lemon-ice yellows" make a stunning picture. Heretofore we have had only the old-time 24- and 36-chromosome *pallida*-strain orchid pinks. With these two new ones the orchid coloring is now represented in two fine flowers of large size and good all-around quality.

Passing to the pink blends, Mrs. Whiting's TEA ROSE, Grant's CORAL MIST, Nelson's SHOW GIRL and Hall's CHANTILLY are all surpassingly good. In CHANTILLY, Mr. Hall has unearthed a unique recessive factor—that of extra-heavy crimped petal edges. The bud tips are triple-horned instead of single-pointed and the fully opened flowers are lacy-edged all around and three times as thick as an ordinary iris petal. This factor is a distinct novelty, and a valuable one.

Coppers, Tans, Browns

I have always dreamed that someday there would be an iris of rich gleaming copper—almost a burnt orange. Many blends have approached it from quite a distance, but when I found BRYCE CANYON this year I realized that here was the closest approach yet, in a perfectly stunning flower. BRYCE CANYON was the one iris I *had* to have this year, and I had my check returned by three dealers before I finally induced someone to sell me one. The color is described as henna-copper, but this description gives no impression of the depth of lustre and the glowing undertones in the flower. Its pace-setting record in the H.M. balloting this year means that a lot of other judges feel the same way about it as I do. It is simply gorgeous and I can hardly wait for my single plant to become a clump with creams and medium blues nearby. In somewhat more subdued tones of brown TOBACCO ROAD and CASA MORENA took my fancy. In still different shades RUSSET WINGS and JASPER AGATE were excellent. COPPER RIVER is held by some to be excellent, while good reports on Douglas' COPPER GLOW continue to come in. Hall's GOLDEN RUSSET is, I think, the most tremendous iris extant, but is neither golden nor russet, nor hardly even an iris, it is so huge!

Lavenders

Another color that has just "come of age" is true lavender. We now have in Mr. Hall's LYNN LANGFORD and LAVENDER MIST two perfectly beautiful new pure silvery lavender flowers of all good

habits. Carpenter's SILVER LUSTRE is reported to be another. These are not blends and are so utterly distinct from anything that has gone before that they belong in an entirely new color class—a grand addition to the iris rainbow!

Reds

Darker and much redder than these three and a magnificent brand new color was MULBERRY ROSE. One sees it a block away and it is one of the most delectable colors I have ever seen in any iris. Close inspection reveals no faults, although I would like to see someone put ruffles on it. This one I must have. In the same color range but more bronze and rosy was RED AMBER, a smooth flower if I ever saw one.

Red has never been a favorite color of mine, largely because it combines so poorly with other colors, and on my return I found nothing in this class that I would prefer to Mrs. Whiting's GARDEN GLORY, which I still maintain is the smoothest deep red-toned iris yet produced. Many were larger, a few were redder—LIGHTS ON, FLAMELY and many unIntroduced seedlings. But I'll take GARDEN GLORY. SOLID MAHOGANY I've not seen.

Dark Purples, Maroons

Among the darkest purples and maroons, I found little improvement over the finest of two years ago. No iris in my garden were more exclaimed over than CAPTAIN WELLS, SABLE, DEEP VELVET and INDIANA NIGHT. Kenneth Smith's LORD DONGAN, planted with deep yellows, was very striking and fine. I think this entirely distinct and lovely iris deserves much more praise than it has received. Mary Williamson's mulberry toned MASTER CHARLES was the only really new one in this color class that stood out as a decided advance in this populous group. MASTER CHARLES eludes description as to *why* it is so good. Perhaps it is the unusually fine flaring form, or the rich glowing sheen on the pure purple petals when the sun strikes them. But it's very fine.

Trends in Breeding

After three years' absence from the iris scene, I notice these healthy tendencies in American iris breeding:

- (1) A new emphasis on CLEAR COLOR, and an almost entire absence of introductions of muddy blends disguised as "art shades."
- (2) The production of iris of entirely new colors and combinations of

colors, as the new buff-pinks, true lavenders, bluer blues, clearer golden yellows and orange-coppers.

(3) A growing unwillingness of breeders to introduce new varieties until they have been tested for hardiness *for a number of years*, often in different sections of the country, and until sufficient stock has been accumulated to permit introduction at a reasonable price.

(4) Education of the iris buyer through experience that he need not pay ridiculous prices for highest quality novelties. Examples: CHIVALRY (\$15), BRYCE CANYON (\$10), BERKELEY GOLD (\$5). Who can name better iris in these colors at *any* price?

(5) A welcome insistence on the part of the public on plants of good *vegetative* characteristics, apart from color novelty, and a greater appreciation of what constitutes a "good iris."

And still, these tendencies are only straws in the wind. There are too many introductions of mediocre plants, too many breeders who "never get the word," or are too eager to father a novelty before it proves itself. The result of such promiscuous fatherhood is quite obvious from the most cursory glance at any of our iris catalogs. Perhaps now that the travel situation has eased up a bit and breeders can compare their novelties more easily, we will get a little more selective all around, with decided advantages accruing to the iris-buying public.

OFFICERS RE-ELECTED

■ THE ELECTION of officers of the Society was held by mail this year because the annual December meeting of the board of directors of the Society was cancelled due to transportation difficulties.

As a result of the poll of the directors, all officers were re-elected. They are: J. E. Wills, president; J. P. Fishburn, vice-president; H. R. Watkins, secretary, and E. G. Lapham, treasurer.

To succeed F. W. Cassebeer, retiring editor, the directors subsequently appointed Robert S. Sturtevant as editor and Geddes Douglas, assistant editor.

Previously, all directors whose terms expired in 1945 had signified their willingness to serve another term. As no further nominations of directors were submitted by the membership, they were declared re-elected. They are: F. W. Cassebeer, Geddes Douglas, Dr. H. H. Everett, and Dr. R. J. Graves.

THE MYSTERY OF SOFT ROT

JESSE E. WILLS

■ THIS PAST summer I had a peculiar and unwelcome visitation from bacterial soft rot which reminded me somewhat of the experience of M. E. Douglas, described in BULLETIN No. 76 (January, 1940), and also that of the Duke Memorial Garden described by John Wister in the same issue. The damage in my garden, although considerable, was not so severe as in either of these cases. It resembled them, however, in that it was hard to find any satisfactory explanation for it and in that the iris attacked were ones that would seem most likely to escape, while iris planted under less favorable conditions were immune.

I have been growing iris to some extent since 1933, and on a large scale since 1938. For years I had practically no rot and rarely saw a true case of it. My main troubles from disease were mustard seed fungus and leaf spot. I did have a good deal of true rot during the blooming season of 1943, as did the other Nashville growers. It often started up in the foliage or on the stalk and in some cases caused buds to rot away. Since then I have had some trouble from time to time in one bed of named varieties, which is too close to the drainage from the septic tank, and which needs raising.

The worst experience I have had, however, was this summer when rot was almost totally confined to certain areas devoted to seedlings. My seedlings are grown in an open field where there is no shade except toward the edges. The earth looks good when it is plowed but is not so good as it looks. The soil is stiff and heavy and packs hard in the summer and is cold in the spring. It is a little on the acid side and lacks potash and humus. The field has a northern exposure and seems to be in a frost or cold pocket. Freezes and late frosts do more or less damage among the seedlings almost every year. This year the damage was very extensive when a very warm March was followed by an early April freeze.

My seedlings are usually grown in rows in beds about 25 feet long and four feet wide, with narrow grass paths between the rows of beds. The section where the rot damage occurred had grown iris for a number of years, so after the blooming season of 1943 I cleaned

it out entirely to let it rest for a year. That fall I planted these empty beds in crimson clover, meaning to spade it under in the early spring when the beds were remade. However, the clover, mixed with some rye, grew taller than I had intended it to and labor was not available to spade it under. I therefore had the whole area plowed up, beds, paths and all. After the first plowing the area was limed and later treated with an 0-14-7 fertilizer mixture. Still later it was plowed again, cleaned up and leveled. I marked off rows across it three and one-half feet apart and had a little sheep manure sprinkled along these lines and the soil pulled up over this along the row. My intention was to guard against any settling that might occur so that after the seedlings were planted they would be only a little above ground level. The man in charge of this job did not entirely understand my instructions, however, and he produced an effect that looked like a washboard with long mounds or ridges eight inches or so above the valleys. I had to plant my seedlings along the crests of these ridges. Because I was late in transplanting them, they did not grow much during the dry summer. This past spring they started to grow vigorously but only the first third that were transplanted, and about 20% of the remainder, would have produced much bloom even if we had escaped the freeze. As it was, most of the plants that tried to bloom were frozen so badly that the buds did not open at all or the flowers were so distorted that it was impossible to tell much about them.

I was very much afraid that rot would follow this freeze as there were many frozen buds down in the fans, but it did not and the seedlings continued to grow rather vigorously. The weather was rainy and cool until early in June when a dry spell followed for about a month, during which I watered the iris once or twice. In July there were some good summer rains, which caused the weeds to grow vigorously also and in cleaning out the rows I discovered soft rot all through the ridge plantings. Although I checked it to some extent, it continued to appear until cool weather and I still found occasional instances of it as late as the middle of October. I did not make an accurate count but estimate that 150 to 200 seedlings were lost and a good many others were damaged.

The rot did not start in the rhizome but began with the side leaves a few inches above the root and then spread downward into the rhizome. There was no rot among the named varieties in beds or in plantings against the shrubbery, or among the remaining 1944 seed-

lings which were planted rather close together in beds, or among a large number of 1943 seedlings which I had never cleaned out and which were choked with weeds. There was a little rot among the newly transplanted seedlings of the current year, which were also planted in beds spaced five or six inches in a row and with eight inches between rows, but there was not enough of this to be serious. The seedlings which had the rot were less crowded and had the best drainage of any iris in my garden. Why they had it, I don't know, and no one has suggested a satisfactory answer. I considered all of these possible causes:

1. The weather. While we had good rains in July and it was a wetter summer than the previous one had been, it was not exceptionally so. The garden had gone through midsummer periods much wetter and hotter without suffering any rot.

2. Lack of drainage and too much crowding. The affected iris had the best drainage and the least crowding of any in the garden. It is true that at the time I first discovered the rot, the iris were buried to some extent in weeds but this condition had not existed very long and after a thorough clean-up the rot continued to appear and did not reach its peak until several weeks later. The seedlings carried over from the previous year were not cleared of weeds until late in the summer but they had no rot. Furthermore, several beds of 1943 seedlings were hidden by weeds and high grass but had no rot even though they were more crowded and had less drainage than the others.

3. An inherited tendency to rot. I do not think inheritance had anything to do with the condition nor do I think that it came from roty strains of iris, as Mr. Douglas suspected in the case of his iris. The worst rot was among crosses of reds, pinks, and blends of parentages presumably hardy. The comparatively few white or blue crosses among the seedlings were largely free of rot.

4. Too much lime. The application of lime had not been heavy and it had been used in other places where there was no rot. In fact, the old 1943 seedling beds had been limed much too heavily the previous fall but there was no rot among them.

5. The sheep manure. This was a common factor present with all iris that had rot as it had been used also in preparing the beds containing the newly transplanted seedling. It had been used also in a great many other beds and plantings that had no rot. I have seen it and other manures used much more heavily by other growers

without causing any trouble. Also, it had been under these ridges for more than a year before any rot appeared. (I don't particularly like sheep manure but it was all I could get at the time. Previously, in preparing beds I had used dried cow manure along with peat moss and humus from a compost pit made from dead leaves and grass clippings.)

6. Too luxuriant and soft growth. The growth in my back lot, while good, was not exceptional or any better than that of Geddes Douglas' and Wentworth Caldwell's iris. Some seedlings, as is always the case, were growing better than others but I noticed that the rot did not concentrate on the well grown ones. Some good-sized clumps were attacked but just as many small, weak plants, which looked as though they had just been transplanted this year, were destroyed. It is true that the foliage growth on these seedlings was on the average somewhat better than it was among the named varieties and on the old seedlings in beds in other areas. In Nashville the foliage in a fan often tends to thin down to a few straggly leaves during the dry part of summer and these seedlings had better fans than the average of my garden but I still could not consider their growth exceptional.

7. A lack of balance in plant food. It occurred to me that there might have been too much nitrogen in proportion to the available phosphorus and potash and that the growth therefore was soft and lacked disease-resistance. This was merely a guess, however, and I had no proof of it.

There was not a great deal I could do about the rot. It was impossible to dig the iris, clean them off, dry them out and replant them as I had no space for replanting. Also, in most instances there was nothing much left to save except a few tiny side-shoots. I did dust every plant in the rows affected with Cupro-jabonite—some of the rows more than once—and I tried to scrape out the rot. I also gave special treatment to the plants most affected when there was anything left to save and dug out the plant and discarded the plant when there was nothing much left. In the case of one or two crosses in which I was particularly interested, I also soaked the plants with Semesen solution and used the copper carbonate. Later on in the summer, acting on the wild guess that there was not enough phosphorous and potash in proportion to the nitrogen available, I sprinkled more of the 0-14-7 fertilizer along the rows.

Soft rot is still a mystery. The latest articles in the BULLETINS on

the cause and treatment of rot repeat more or less the same things that can be found in BULLETINS printed in the early 1920's. The usual treatments prescribed are fairly satisfactory if one has only a small planting with which to deal. They are impractical in the case of a large planting of thousands of seedlings unless one has more labor and more room than were available to me this past summer.

I am inclined to think that susceptibility to rot varies from time to time. Whether this is due to changes in the virulence of the organisms causing it, or whether it is because of some complexity of plant nutrition—too much or too little of some plant food including the “trace elements” or some lack of balance between them—I do not know.

PROPAGATION OF LOUISIANA IRIS

IRA S. NELSON

Southwestern Louisiana Institute, Lafayette, La.

■ TO PROPAGATE is to perpetuate or to increase. Any of the methods used in the propagation of Louisiana iris may perpetuate or increase their population, but certain methods are distinctly superior to others in particular circumstances. It is proposed to review here already known methods as well as to report on a new method not yet mentioned in the literature. The relative merits and limitations of the various propagation procedures should be carefully studied before they are tried, if one expects to reap the full harvest of his labors.

Propagation by Seed

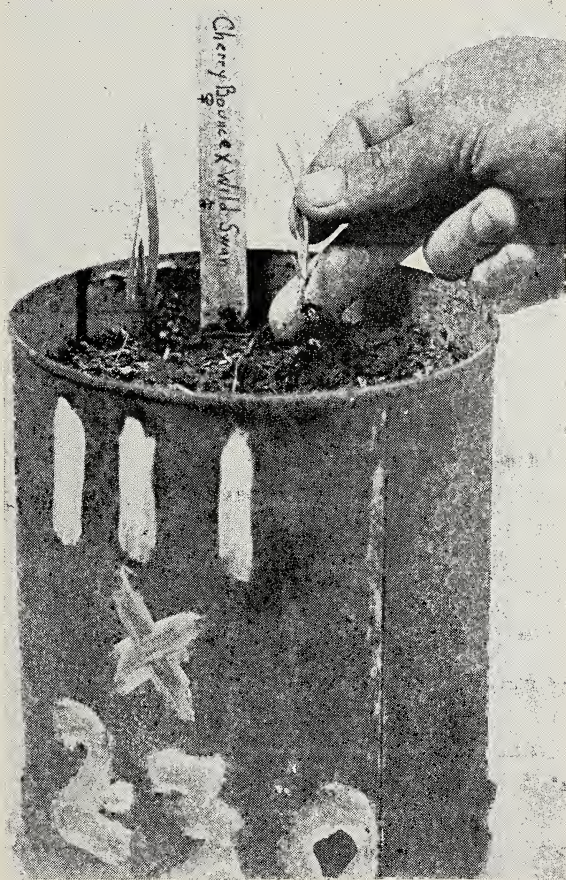
Seed are borne in profusion by Louisiana iris. Each bloom may produce a pod containing from five to 50 seed. Propagation by seed offers a means of getting large quantities of plants at low cost.

Propagation by seed is desirable if trueness to variety and time are not important factors. Species may be propagated to type by seed but this is seldom possible with horticultural varieties. Seed propagation certainly has a place where plants are needed in large quantities for mass planting. Most horticultural varieties are of hybrid origin and their seedlings will vary in form, size and color. For naturalizing, this feature of seed propagation may be desirable. Iris breeders capitalize on the variation of seedlings in the development of new varieties.

A major objection to propagation by seed is the time factor. Louisiana iris seed require a minimum of several weeks before germination, but if not properly handled may require a year or more. Even after the seed have germinated, it is usually the second year before they produce their first bloom. Most of us are too impatient to wait this length of time.

Arceneaux¹ has established that seed germination can be hastened by harvesting the seed when the pod is still partially green and before the seed have developed their full ripe color. If planted immediately after harvesting a high percentage will germinate with-

¹Arceneaux, George; Breeding and propagating Louisiana Irises. BULL. AM. IRIS SOC. No. 82. pp. 67-71, July 1941.



Young seedlings are pricked off.

in a few months. This discovery has done much to speed up the slow process of seed propagation.

The actual planting of the seed may be done successfully in a number of ways. It is usually easier to plant the seed in a small container and transplant the seedling than it is to plant directly in a bed. By so doing, the problem of weeding is reduced. Furthermore, seed planted directly in a bed may be washed away by heavy rain.

A method the writer uses in breeding work is to plant all seed from a single pod in a gallon size tin can that has been punctured for drainage. A mixture of four parts of leaf mold and one part of sand is placed in the can to within two inches of the top. The seed are broadcast over this and then covered with another half inch of the same material. A number which designates the cross is painted on the can and a label giving the cross is inserted. The cans are then watered and placed in a cool location. They are kept moist until germination ceases.

As the seedlings emerge, they are pricked off. Care is taken not to sever the seed from the new seedling or to damage the roots. Then the seedling either is pitted or placed in a special bed where it remains until large enough to plant in the garden.

Vegetative Propagation

Vegetative propagation is by far the most popular method of increasing our iris plantings. There are three phases of this type of propagation. All three phases produce plants which are exactly like the varieties from which they were propagated. The three ways by which Louisiana iris may be propagated vegetatively are by rhizome separation, by rhizome cuttings, and by off-shoots from the flower stalks. This last method of propagation has not yet been perfected, but it is felt advisable to release the facts gained in preliminary experiments.

Rhizome Separation

In nature Louisiana iris propagate vegetatively by rhizome multiplication. Natural increase is surprisingly fast, but its speed can be accelerated by taking advantage of the total mechanism with which nature has provided the rhizome. Under natural conditions a rhizome which forms a bloom stalk will usually produce two side rhizomes. These will bloom the following year, and in turn will produce more side rhizomes. The writer has observed as many as



Here rhizomes are separated.

seventeen side rhizomes formed on a single stalk. If the side rhizomes are not removed, the old rhizome usually rots. However, if the side rhizomes are removed and the old rhizome is replanted, there is an excellent chance that it will produce more side rhizomes before rotting.

The separation of rhizomes may be done any season of the year. If it is done immediately after the plant flowers, the old rhizome has a better chance of producing more side rhizomes. The only advantage of dividing the rhizomes in the spring is that the old rhizome is less apt to rot if the side rhizomes have been removed. The ring-like scars along the rhizome are loci where leaves were formerly attached. Since a bud exists at the base of every leaf there are buds located at each ring-scar. Single rhizomes may have twenty-five to fifty such buds. All side rhizomes develop from the buds located at



*A portion of the rhizome sends out new shoots.
Two on left are ready to be pricked off.*

the leaf scars. Theoretically the number of new side rhizomes an old one can form is limited only by the number of ring-like scars. In actual practice the theoretical maximum can be closely approached if not actually reached by following a few simple practices.

Rhizome Cuttings

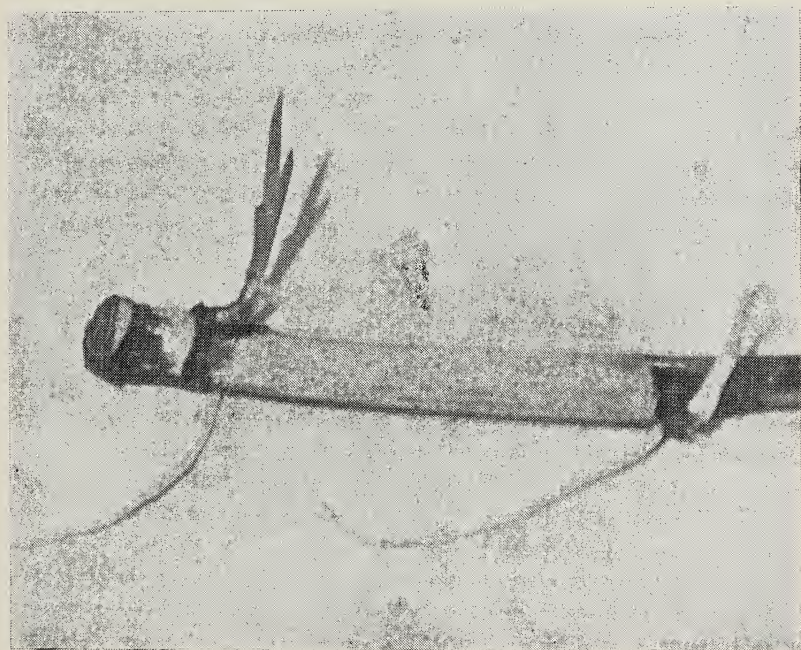
A rhizome planted in soil or other media will tend to produce new shoots. This tendency is increased by removing the growing end. If the growing end is cut to two and one-half inches long, it will be sufficiently large to produce flowers the following season.

The piece of rhizome left, after removing the growing end, should be cut into sections approximately two and one-half inches long. These should be planted and kept moist but not wet and should be

placed in a cool, shady place. In time, new side shoots will develop. When they have reached a height of about four inches, the rhizome section should be carefully dug in order not to destroy any new roots. The new shoots may then be carefully pricked off the old piece of rhizome, replanted, and the process repeated until side shoots cease to develop.

There seems to be a definite advantage in using sections of rhizome about two and one-half inches long. Shorter sections are more prone to rot and longer sections do not develop shoots as rapidly.

Leaf mold is an excellent medium for propagation by rhizome cuttings. The writer has had better success with it than with other material. It is superior to soil in that it holds moisture better and the new shoots are easily removed from it with a minimum of damage to the roots. Caution should be taken not to plant rhizome sections too deeply. An eighth of an inch below the surface is a satisfactory depth. The new shoots should be planted in a fertile soil and kept moist and shaded until they have developed into new rhizomes of sufficient size to be planted in the garden.



Two off-shoots grow on iris flower stalk. Propagated in sand.

Propagation by Flower Stalk Off-Shoots

Fundamentally the undifferentiated buds on the flower stalk are no different than the buds on the rhizome. These are found at the base of the lower leaves on the flower stalk. It should be possible to stimulate all buds on the flower stalk except those that are actually flower buds into forming off-shoots. This reasoning has proved to be at least partially correct. Experiments carried on at Southwestern Louisiana Institute have established that at least some of the buds on the flower stalk can be stimulated into producing vegetative off-shoots similar to those produced on the flower stalk of the daylily.

Two techniques were used. One was to place the flower stem in a quart bottle of water so that the water line was slightly above the



Off-shoot is produced on flower stalk. Leaf has rotted away. Propagated in water.

base of the leaf. The bottles were then placed in semi-shade. In a few weeks off-shoots developed on approximately one-third of the flower stems. The off-shoot was identical in appearance to the off-shoot from a rhizome.

The other technique was to place the flower stalk horizontally in a sand propagating box. Only one-fourth of the stems thus treated produced off-shoots.

The off-shoots in both cases appeared about the time that the leaves disintegrated. The stems remained green in the vicinity of the off-shoots until they were pricked off and planted. All bloom stalks which had a seed pod failed to develop any off-shoots.

It is reasonable to assume that more satisfactory techniques can be developed and that this type of propagation will become especially valuable to propagators interested in getting the maximum increase on varieties of which there is limited stock.

This article is reprinted, by permission, from the October 1945 issue of "Home Gardening."

IRIS IN WEATHER GONE AWRY

RALPH M. SCHROEDER

■ THAT familiar old wail of the gardener about "unusual weather" was but a mild complaint for the Middle West this season. A warm March rapidly melted a blanket of snow that had covered the ground since early November. Continued warm weather spurred the growth of all perennials and by the middle of April the season was about four weeks ahead of normal. On April 20 GOLDEN Bow put forth its first bloom. In my garden, this harbinger has always meant that in five days the tall bearded iris would start to bloom.

In spite of the advent of cold, wet weather, the prophecy was nearly fulfilled. On April 27 my first bloom opened. Continued cold weather slowed the opening of the blooms. A few opened every day but the season did not reach its peak until about May 24. This was about three to four days ahead of normal. The weather continued cold and the bloom continued slow. Finally, on June 10, MATA HARI came into bloom at least a week later than usual. At least 50 varieties were still in bloom.

Hard rains the first three days of May made work in the garden impossible. I had long wanted to visit the gardens in and around St. Louis, so on the night of May 3 I began the trip. I went to Carbondale, Ill. There I visited the garden of Miss Eva Faught. This garden is about 75 feet wide and extends south from the house about 400 feet. The first 225 or 250 feet slope gently, between beds of iris and other perennials, to a small stream. Beyond this stream is a rather sharp incline. At the top of the hill, and at the end of the garden, is a small white garden house. On the right of the grass path is a wide bed containing some of the owner's older seedlings. To the left, on the slope of the hill, were a number of small terraces on which were planted the new seedlings. Very few of these seedlings were in bloom as it has been impossible to transplant them from the germinating beds until late last summer.

As Miss Faught also had chosen the bad weather as an excuse for a trip, I can give no detailed descriptions of a number of nice things. Through correspondence with Miss Faught and comparison with last year's notes, I am able to make an exception of ILLINOIS SUNSHINE. This flower is a large, well formed, deep yellow self. There is a small blaze of lighter color along the mid-rib of the falls. This iris was seen in Bloomington last year and was very much admired. The weather at that time was hot and wet. This year in cold weather it was equally good. I believe it to be the equal of any yellow iris in commerce today.

The following day my sister and I tried to cover the gardens in St. Louis. I had sadly underestimated the gardeners of that territory. One should figure on at least three days there.

The first stop was at the Appel garden. There we found a decided *lack* of labor shortage. Mr. and Mrs. Appel and all of the children are gardeners. This is quite an unusual garden. A steep bank covered with iris, descends sharply from the street to the lawn about six to eight feet below. The lawn is completely surrounded by beds containing some of the better commercial varieties as well as a number of good seedlings.

Other gardens visited in the morning were those of Mr. Sisco, Mr. Rudy, Miss Buder and Mrs. Strouse. At all of these we found some seedlings. After joining my brother-in-law at lunch, the three of us repaired to the garden of Mr. Hardy. Mr. Hardy grows many seedlings but a freeze had badly damaged the garden and there were very few flowers to be seen. From there we went to the gar-

dens of Mrs. Buxton and Mrs. Reeves. These two gardens are side by side and contained many of the newer iris. Everywhere we went we heard of Joe Becherer. About three o'clock we decided the proper procedure was to skip some of the other gardens and visit his before catching the train at 6:30.

At the Becherer garden we discovered the owner looking at a new seedling. It was from WILLIAM MOHR $\times$ GYPSY BARON. The color was dark blue and was very much smoother than either of its parents. It was here that I became acquainted with MISTY GOLD, a very fine yellow from the Schreiner garden. CHOCOLATE SOLDIER, a dark, velvety chocolate-red of good form and with practically no haft marks, looked like a very promising variety. FRECKLES, a small yellow dotted all over with cinnamon, is an excellent garden flower. One of the newer varieties was FROSTED GLASS. According to my notes, this flower has pale yellow standards and pale blue falls with an edging of the same color as the standards. The form, substance and branching are all very good. While I am not in the least partial to the blue and yellow blends, I feel that this is the proper iris to fill the vacancy in my garden. I believe that the majority of growers will find it a welcome addition to their collection. Later in the season, I was to see other originations from this garden and I feel that Mr. Becherer is doing an excellent job.

I need not enlarge on the fascination of this garden when I say that I missed the train.

Returning home the next morning, I found things much as I had left them. For the next four weeks I combated winds and rain in order to enjoy the garden, do some cultivating and to take a few pictures. Most of the flowers were in good shape. Some of the earlier ones were not true to color but as the later ones opened this trouble was rectified. Two of the most outstanding things in the garden were BRYCE CANYON and CHIVALRY. BRYCE CANYON is without doubt the finest color break to date. Its henna-red color is brilliant and the form and branching leave little to be desired. Visitors in the garden found it unique. CHIVALRY is one of the finest blues. These two iris should stage quite a race for top honors. Other fine things in my garden were DREAM GIRL, GYPSY, MASTER CHARLES and MOONLIGHT MADONNA.

After Memorial Day I resumed my travels, and at the Hodson garden I again saw "The Jewels of the Madonna." This is a nicely tailored milk white iris with a golden beard and haft markings. In

this garden were a number of other seedlings as well as named varieties. All were liberally covered with tags indicating that "Hod" was doing his bit at improving the race.

I next visited Greig Lapham and his bantams. Incidentally, in spite of the unfavorable weather, I did see some very nice iris. One of the strongest garden flowers was No. H7, one of last season's "Congo pinks." According to my interpretation of Ridgway, it is light cinnamon pink overlaid pink. It has a world of carrying power and was noticeable from anywhere in the garden. BLAZE OF GLORY and LIGHTS ON show lots of promise in the red class. Two new seedlings—No. G7 and No. G13—are redder than anything else in the garden. No. G10 is a new pink seedling of heavy substance and I believe that it will go places.

The following day at Mr. Hall's garden I discovered two more reds—Nos. 45-05 and 45-07. They are sister seedlings and are excellent competition for the Lapham reds. One of Dave's finest is LYNN LANGFORD. This is a lavender self heavily marked at the haft with gold. Another good lavender flower was No. 39-99. I have often wondered why this one was never introduced. CHERIE and HIT PARADE seemed the best of the pinks. Other good things grown as guests in this garden were GARDEN GLORY, AZURE SKIES, RUSSET WINGS and ROSE PEARL. I also saw LADY MOHR here.

At Orville Fay's I again saw that host of good seedlings of last year. PINK CAMEO (No. 44-01) is an outstanding pink and if it multiplies enough may be the outstanding introduction of 1946. NEW SNOW, a ruffled white, attracted much attention. One of the finest things was No. 44-36. This is a clear peach self with a red beard, lots of substance and branching. This is something new in iris color. I believe that the best of the yellow crop were Nos. 44-12 and 44-13. No. 44-44 is a very nice ruffled blue. It has rather high branching but the color is excellent. Outstanding guests were CARILLON, MIOBELLE and FRANCELIA.

During the following week, I visited a number of the other gardens in the Chicago area. At the garden of John Buneaux I saw the best seedling of 1945. His No. 43-33B would have been a competitor in any season, but in this year of so few good seedlings it was a standout. It has golden amber standards and rosy red falls with an amber edge. Hubert Fischer had two very fine whites in Nos. 2518 and 2583/2.

During the middle of June I spent one day in the Schreiner garden. It had been raining almost continuously until the day of my arrival and the same damage from late freeze was apparent as noted in Illinois.

In the garden, BLACK FOREST was everything that its originator claims. It is almost a complete self, being a brilliant black blue with a blue beard. Because of its brilliance, it does not seem dark unless compared directly with dark iris. ANGELUS produced a fine seedling for Mr. Becherer when EL MOROCCO bloomed. This pink and yellow blend is indeed a fine iris. Others seen here were JASPER AGATE, DINAH SHORE, BRIGHT MELODY, LAMPLIGHT, BLUE DELIGHT, BLUE ZENITH, TISHOMINGO and MOUNTAIN SKY.

THE PRESBY MEMORIAL GARDEN

C. H. CALDWELL

■ THE PRESBY MEMORIAL Garden is an iris display garden situated in Mountainside Park in Upper Montclair, N. J.

It was developed by friends of the late Frank Presby, one of the founders and the first treasurer of the American Iris Society and long a beloved citizen of Montclair.

Mr. Presby was greatly interested in horticulture and especially in iris. He furthered good horticulture in every way possible in Montclair and was often consulted and gave freely of his time in assistance to many gardeners.

The Town Commission of Montclair decided to plant an iris garden in Mr. Presby's memory, with the supervision of the layout and planting to be in the hands of a committee of citizens, the town to supply all labor, top-soil and care. The idea originated with the Montclair Art Museum group of which Mr. Presby was formerly a member.

The garden was started in 1927. The Hon. Henry M. Lardner, then mayor of Montclair, appointed a committee of which Mrs. F. P. Walther, whose residence adjoins the Garden on the south, was made chairman. To the efforts of this committee and the support of the Garden Club of Montclair the success of the garden is due.

The site is a gently sloping meadow with a wooded hill in the background. The principal beds are at the bottom of the meadow;

adjacent to Upper Mountain Avenue. The beds are on each side of a path, extending for yards. The path divides near the southern end around a large triangle and then runs part way up the slope.

A large memorial gathering was held at the first planting, with Miss Everett representing the American Iris Society. A memorial address was given by Walter Kidde. The meeting was opened by Mrs. James Logie, president of the Montclair branch of the National Plant, Flower and Fruit Guild, who turned the meeting over to Mayor Lardner. Beside all members of the Town Commission and officers and members of the garden club, many friends of Mr. Presby were present.

At present writing the garden has more than 1,000 varieties, mainly bearded iris, although the bulbous, *Evansia* and beardless species are represented, including a few Japanese, largely through the kindness of Dr. Reed of the Brooklyn Botanical Garden.

The purpose of the garden is the display of iris to show gardeners what can be done with this beautiful and easily grown flower. During the blooming season, members of the committee are on hand to give information on methods of growing, names of varieties and where they may be obtained.

An additional project, now under way, is the formation, in replanting portions of the garden, of a series of beds showing the best introductions, year by year, since the early days of iris growing. In this way, the vast improvement in this flower is clearly illustrated.

The committee is using the English method of raised beds, advocated by William R. Dykes, to provide proper drainage. The beds are completely open to the sun and air and each fall are carefully cleaned, the plants cut back and then protected with salt hay. These methods serve to keep out borer moth eggs and to keep down media for spore disease development and to them is attributed the fact that little loss from rot or borers has been experienced in the eighteen years of the garden's existence.

The committee is greatly indebted to the officers and members of the American Iris Society for their interest in the project and especially to John C. Wister for advice in the layout, his continued support and many gifts of iris.

Dr. Arthur Castleman, of Camden, N. J., has given iris and in many ways helped in the development of the garden. The committee is also indebted to the Sass brothers and to Col. J. C. Nicholls for their support. Dr. R. J. Graves has given generously

and Mrs. Peckham was one of the first to present iris to the garden.

Thanks also are due to the following growers who have assisted us in obtaining new introductions: Robert Schreiner, Mrs. Thomas Nesmith, Mrs. C. G. Whiting, Mr. Thole, Mr. Kunderd, the Longfield Iris Farm and Dr. Kleinsorge through Cooley's Gardens.

The Garden Club of Montclair, which sponsored the garden, has each year given a small sum to the committee so that it might secure some of the newest fine developments for the project.

The committee's objectives are to keep in the garden the best of the new developments each year so that gardeners may study and select what varieties they wish to have in their gardens; to have the garden planted to show each iris to best advantage and to create, at the same time, sweeping bands of color for the enjoyment of those who love garden pictures better than the individual flowers.

The public reaction to the garden has been very interesting. During the blooming season we have hundreds of visitors, especially in the late afternoon, when the iris are at their best.

An interesting point is that many of the questions asked of the committee come from gardeners who can afford but one or two new iris at a time and who wish to have as choice a selection as possible. We find that the same persons come back year after year.

Recent additions to the collection are CHICORY BLUE, WHITE WEDGEWOOD, STARWOOD, STARDOM, MELANIE, ALASTOR, TAN DELIGHT, BLACK BANNER, WINTER CARNIVAL, SNOW CARNIVAL, BLUE SHIMMER, ELMOHR, GOLDEN EAGLE, MISS BISHOP, AZURE SKIES, COPPER ROSE MINNIE COLQUITT, OLA KALA, PRAIRIE SUNSET, MULBERRY ROSE, LAKE HURON, FLORA ZENOR, CRIMSON TIDE, SUNSET SERENADE, DAYBREAK, AND THOU, INDIANA NIGHT, ALEPPO PLAIN, MELITZA and many others.

JACOB SASS

■ WE LEARN with deep regret of the death of Jacob Sass on December 10, 1945, in Omaha, Nebr., at the age of 73. Mr. Sass, with his brother Hans, were pioneers in iris breeding in this country. His work extended over a period of more than 40 years. He will long be remembered by irisarians for the many sterling varieties he introduced.

A REVIEW OF THE SEASON

MRS. RALPH E. RICKER

■ THE PAST IRIS season has been an extremely interesting but a very different one than we have ever experienced in this section of Northwest Iowa. The iris came into bloom during the middle of May and bloomed until the middle of July. Some tall bearded iris came into flower ahead of their schedule, intermediates bloomed very late and some did not bloom, but on the whole we had a marvelous wealth of iris bloom.

The winter was not so cold as usual, nor did we have as much snow. However, when it did snow, it would melt and then freeze—the sort of weather that is hard on gardens. This year I uncovered the iris in my garden March 25, the earliest that I have ever done so. We had very warm weather during March and the iris made fine growth. Then on April 10 we had a very hard snow storm, the heaviest snow we have had on this date for seventeen years. It did not last long and it did very little damage. After it, we had rain, rain and more rain but the iris did not mind these downpours.

The highlight of my garden visiting was at the garden of Mr. and Mrs. Charles Whiting at Mapleton, Iowa. In this well landscaped garden, iris show to natural advantage. All are very well grown and attractively and conveniently displayed, making it an enjoyable garden in which to study and judge iris. Here I had an opportunity to see a number of varieties about which I had heard, some of the outstanding new varieties and some very promising seedlings.

It was my pleasure to be a house guest of Mr. and Mrs. Whiting for several days early in the iris reason and a week later I had another enjoyable visit to their lovely garden. During my second visit, Mrs. Frank Winegar of Omaha, Nebr., was a house guest, too. The morning that Mrs. Winegar arrived there was a wealth of bloom in the garden. Mrs. Winegar and I have for many past seasons enjoyed the iris with Mr. and Mrs. Whiting. During my visits, there were many beautiful iris in bloom and many delightful surprises of iris in new shades and with excellent form.

Shrubby borders the seedling garden on three sides; the fourth

is open to a vista of evergreens. The evergreens in the background furnish a lovely setting for the new seedlings and the broad grass paths between them give added pleasure and beauty. One can travel along the seedling beds and find iris after iris worthy of the highest praise. Mrs. Winegar and I choose eight as our favorites among the splendid lot of Whiting's seedlings. These were:

No. 4362 (AMARANTH $\times$ THREE OAKS)—Large flowers on tall, widely branched stalks. Hydrangea to mineral red with a touch of blue at tip of beard. Amber haft and claw.

No. 4370 (AMARANTH $\times$ THREE OAKS)—A sister seedling of No. 4362. Not so large or so tall as No. 4362 but still brighter in color. Dark Pompeii red, near self with smooth copper leaf overlay at haft and a copper brown beard. Hans Sass called it a "hot red."

No. 4275—A yellow of slightly greenish tone; wax yellow according to Ridgway; overlaid heavily on the falls with pure brass, which gives it a metallic finish, brighter than anything in the color chart. The flowers are medium large, wide and full with very heavy substance. The branching is exceptionally good, each stalk carrying from eleven to thirteen flowers, with no crowding. It bloomed over a three-week period.

No. 4353—This showed the most brilliant bit of coloring in the garden. If it were taller and better branched, it would be one of the stars of the garden. A much redder VEISHEA with a metallic blue blaze in the falls. Just as it is, it makes a stunning patch of color.

No. 4246—A deep jasmine yellow self of large size and wonderfully wide, full form. It blooms only 28 or 30 inches tall but it well branched for its height, carrying many blooms without crowding. It would be most effective in the low border. Everyone is calling it the "fat yellow."

WILD HONEY (No. 4219)—This will be introduced next year. A rich, tawny brown-gold self, it matches the *Dictionary of Color* name, "wild honey." The blooms are large and wide, the stalk strong and well branched. It begins blooming early but lasts well into mid-season.

No. 4240—A pink blend. Individual flowers very large, wide and full; color, clear and pure. With a little better branching, it would be the finest pink blend in the garden.

No. 4280—In a whole row of white seedlings we thought No. 4280 the best.

In addition to these, we noted several other fine seedlings, which were:

No. 40-365 (Jake Sass)—One of the best of the PRAIRIE SUNSET seedlings. A beautiful blend of red-gold coloring. Splendid form and finish.

No. 40-457 (Jake Sass)—A green-gold self of very heavy substance and texture.

No. 118-39 (Hans Sass)—A yellow plicata; large flowers of splendid form and substance.

No. 36-41 (Hans Sass)—We missed seeing No. 36-41, a brilliant bicolor, as it did not bloom this year, but remember it from last year as having the

most glowing red falls we have ever seen. The standards are gold-tan and the falls a very rich red velvet.

No. 44-49 (Tompkins). We liked this seedling because of its unusual coloring. It is an orange pink blend; the flowers are of pleasing form and fine texture.

Excerpts from my garden notes follow :

BLUE RHYTHM—One of Mrs. Whiting's 1945 introduction. It has a fascinating blue tone, being close to cornflower-blue, softened by a silvery overtone, lovely, smooth and clear. The flowers are of beautiful form with wide standards, arched and domed, and semi-flaring falls carried on widely branched stalks. Height, 38 or 40 inches. It was greatly admired by all those who saw it.

ROCKET—For color appeal, **ROCKET** attracted my attention. Another 1945 introduction, outstanding and quite different. The standards are pure deep chrome and the falls are deep orange chrome almost to the edge. Its color, size, height and branching are excellent. A classic flower of large size and heavy substance, carried on 34-inch stalks. There is a brightness to this iris that makes it outstanding from a color standpoint.

BURMESE GOLD—The lovely color of this iris is hard to describe. It is a smooth blending of deep yellow, pink, apricot and real gold. It may be visualized as a blended self with just enough real gold to bring out the life and beauty of the flowers, which are ruffled and of excellent substance. The branching is not particularly wide but the arrangement of the buds gives it a long season and lovely blooms.

CLOTH OF GOLD—This 1945 introduction is a brilliant deep yellow. The flowers, which have good form, substance and a smooth finish, are enlivened by the heavy orange beard. The strong stalks are well branched and the height is 36 inches. It is very attractive in the garden.

GALLANTRY—A brilliant and unique iris of intensely rich medium dark blue coloring. A true self with flaring falls, extra heavy substance, good poise and excellent branching. A most unusual and beautiful iris.

MELLOWGLOW—A beautiful finished flower, exquisite coloring of rich tones of deep peach and apricot with a flush of pink. The beauty of the flower is enhanced by the heavy orange beard. The standards are very wide and well arched, the falls are very broadly rounded. It was outstanding, magnificent.

PRAIRIE SUNSET—A great favorite. In this iris one finds a smooth blending of pink, apricot, peach, rose, copper and gold, so well done that it cannot be described but must be seen to be appreciated. Its coloring is beautiful in any light. Both **MELLOWGLOW** and **PRAIRIE SUNSET** should be seen for their color harmony to be fully appreciated.

HARVEST MOON—A brilliant blend, providing a maximum number of bloom. Its glowing color provides a cheery spot in the garden.

PINK REFLECTION—A delicate blend of pink and pale gold, a very fine iris. Well branched, 36-inch stalks with beautifully formed flowers of heavy substance and fine texture. I think this is one of the loveliest light pink and gold blends that I have seen.

MANDALAY—An interesting blend of rose and orange.

ALZA HOLA—A very attractive blend of powder blue and gold. The standards and falls are lightly edged with heavier gold.

GRAND CANYON—An unusual blend of plum, copper and gold, which made a splendid showing. The flower is brightened at the center with a gold beard and throat. Both the form and substance are good and the stalk is well branched.

VEISHEA—Never fails to attract attention. This rich brilliant blend of bright copper and rose with a blaze of blue in the center of the falls is very colorful in the garden. The flowers are evenly spaced on sturdy 34-inch, well branched stalks. One of the gems of the garden.

REMEMBRANCE—This iris with its soft color of pink blended with yellow makes a lovely bit of color in the garden. The large flowers are of good form and substance. A real beauty which shows up well in the garden.

HOOSIER SUNRISE—A very lovely pink and soft tan blend with broad standards and falls. It has excellent substance and branching and a height of 40 inches. Another beauty which makes an attractive clump.

GRACE BALLARD—A beautiful blend of pink and creamy apricot tones which I like more each time I see it. The flowers have exceptionally fine form and substance and are well placed on sturdy, well branched stalks.

THREE OAKS—Lovely in an established clump. The color is deep rich mellow pink with an overlay of rosy copper. The blue light on the falls gives it added beauty. The flowers are large with domed standards and semi-flaring falls.

STARDOM—Very lovely in the garden.

TEA ROSE—Very attractive as a garden clump. The smooth blending of rose and pale gold gives the effect of a copper pink self. The flowers are medium size and well spaced on the sturdy stalk. An iris of perfect form, a classic in its color section.

DeForest's introductions—Of Fred DeForest's introduction—**CALDERILLA**, **CASA MORENA**, **LORI MAY**, **PRETTY PENNY**, **SONRISA**, **FORTUNE'S FAVOR**, **MOLLY MAY**, **RIO ORA**, **MARIMBA**—I consider **SONRISA** and **CASA MORENA** the most outstanding. **SONRISA** was even lovelier than I had visualized it from the descriptions. The stalk is sturdy, well branched and the flowers are excellently placed. The large, flaring flowers have very fine substance and are slightly ruffled. I was much impressed with this blend of coppery pink which has an undertone of old gold that gives it a metallic finish. **CASA MORENA** is a large flower of deep rich brown. It is not dull like some of the brown-toned iris; it really makes a bright spot in the garden.

REDWARD—A brilliant crimson red of startling and vivid beauty.

DISPLAY—A very rich, brilliant brown red of medium size and good form; has great carrying power in the garden.

REDYEN—An interesting red iris of glowing velvety texture which is slightly lighter than **DISPLAY**.

RED VALOR—A fine, large, deep garnet red with a brown beard.

THE RED DOUGLAS—Still an excellent iris. It is not the reddest iris by any means but the coloring is so rich and glowing that it is admired by many.

GARDEN GLORY—A rich Bordeaux red self with no haft venations and with a dark beard. Although of medium size and height, this fine iris causes one to stop and admire its exceptionally clear coloring, its classic form and its smooth, enameled finish.

GARDEN FLAME—Excellent. This garnet red self of splendid form and texture is hailed as one of the most outstanding red iris.

ELMOHR—An exquisite iris of a rich reddish mulberry shade. It was in full bloom, giving a glowing mass of color in the garden.

BLUE ZENITH—A deep sky blue self, tall and well branched. It makes a gorgeous clump.

THE ADMIRAL—A bright medium-blue self with good garden value.

FROSTY BLUE—Distinctive. Has large, light blue flowers of excellent form and substance with a frosty, silvery finish. The stalks are well branched and carry many buds.

GREAT LAKES—One of the best in the light blue class. It made a fine showing.

LAKE HURON—A medium blue that has good garden value.

NIGHTFALL—A most interesting bicolor, the falls very velvety rich pansy purple with almost no veining on the haft, the standards several shades lighter than the falls. Very smooth and stunning.

VATICAN PURPLE—A great favorite of mine. It is a rich blue-purple self which radiates charm and personality. The texture is not velvety; it has a glossy, satiny finish so that it neither fades nor spots.

SABLE—One of the richest of the dark ones. Fine in every way.

SEA BLUE—Clear blue self of medium tone. Smooth, clean haft, good substance and branching. Satisfactory in every way.

ALICE WEBB—A good soft blue.

DEEP VELVET—A grand iris which I admire very much. It is a rich purple, dark yet bright, with well formed blooms of large size and splendid texture.

TISHOMINGO—Smoothness of substance characterizes this large, clear, wisteria blue self. A very fine iris and most colorful.

CONCERTO—A deep pansy purple of velvety texture and heavy substance. There is a lighter edge around the falls which gives the flower added beauty.

BLUE RIVER—A deep blue, one of the bluest. As a rule, this is an early bloomer.

OLA KALA—A very splendid deep yellow self that attracted a great deal of attention. Its size, height, purity of color, form, branching and substance are all excellent.

GOLDEN SPIKE—A clump of this brilliant deep yellow self was performing splendidly and was very lovely in the garden.

GOLDEN FLEECE—A truly exquisite flower with standards of clear yellow; the falls a creamy white with a definite edging of lemon yellow all around them. The deeper color of the standards extends to the wide haft at either side of the yellow beard. It was especially fine this year.

BUTTERCUP LANE—For brightness for the front of the border, plant this very fine ruffled bright yellow.

FAIR ELAINE—One of the loveliest iris. It was in full bloom. It has cream-white standards and rich gold falls accentuated by a deep gold beard.

GOLDEN MAJESTY—Another very fine golden yellow and a very reliable bloomer.

GREEN SHADOWS—A fascinating iris of pure green-gold. The flowers are large and beautifully formed, the stalk tall and well branched.

MOONBEAM—An interesting cool pale yellow self of beautiful form and texture. Branching is good.

MOONLIGHT MADONNA—A clear lemon yellow with a hint of green. The flowers are ruffled, well formed, medium large.

RAEJEAN—I was so happy to see such a splendid clump in bloom as this iris is late flowering and was missed by many visitors. This two-toned bright yellow is one of my favorites and one of the joys of the garden. The flowers have well domed standards of clear chrome yellow and the cream yellow falls are bordered with the deeper yellow of the standards, which gives it distinction.

JONQUIL—Tall and stately, blooms of fine substance and form. The very large flowers are of soft clear yellow edged with deeper yellow on the standards and falls. Its height is 42 inches. A good grower and a fine bloomer.

LATE SUN—I like this deep yellow very much. The flowers are large, well formed and of heavy substance.

SPUN GOLD—A striking velvety yellow with a glistening texture. No veining or shading mars the purity of coloring, which is enhanced by the rich beard. Blooms well in this section.

GOLDEN EAGLE—A satiny light yellow of great brilliance, very large and fine.

ALBA SUPERBA—A striking white, fine in every way. It has domed standards, flaring falls, heavy substance and tall, well branched stalks.

MARY E. NICHOLLS—A warm white self with an overlay of gold at the haft. Very good.

MATTERHORN—One of the older varieties but still one of the finest pure whites.

SNOW CARNIVAL—A very outstanding large and beautifully ruffled pure white. It is a real gem for the garden and is striking in a clump.

STELLA POLARIS—A large, cool white of excellent form and substance; the branching is exceptionally fine.

AVE MARIA—A very large, clear, pure white of heavy substance. The branching is wide, giving fine placement to the flowers.

MOUNT WASHINGTON—Still one of the really fine older whites and it is hardy in Iowa.

SNOW FLURRY—When I see SNOW FLURRY blooming, I always think of it as I saw it at Mr. Salbach's at the time of the A.I.S. meeting in California. Referring to my notes of 1939, I find that I made this comment about it: "It is a fitting name for this pure ice-white flower with the faintest cast of blue—a most outstanding iris." When I saw it blooming this year, I thought that it was rather short branched, but the ruffled flowers are beautiful.

SNOW VELVET—An excellent white of velvety texture.

JAKE—My first glimpse of JAKE was in the garden of Mrs. Frank Skrdla at Atkinson, Nebr., last season. I was indeed glad to see it again in the Whiting garden. It is a glistening white of heavy substance and will hold its own among the best. I noticed that everyone admired it.

PRISCILLA—Very lovely. This glossy, waxy, snow-white iris is really white for it has no touch of any other color—even the beard is white. Neither tall nor large, PRISCILLA is a gem for the border. A row of it in the garden was most outstanding.

PATRICIA—Another interesting white iris for the border, semi-flaring in form with standards and falls both heavily ruffled.

WHITE CITY—It was in full bloom and very fine but it seems too blue to be called a white.

WINTER CARNIVAL—This is an outstanding, flaring, crisp pure white with a touch of gold at the throat. Its well proportioned flowers are of heavy substance.

BLUE SHIMMER—A blue and white plicata, different and most impressive. The fine big flowers have a crisp, enameled white background, heavily but evenly marked and dotted with blue, a real blue. It has very good carrying qualities in the garden.

ROSE TOP—Appears pink at a distance but is actually a light creamy yellow, deeply bordered with pink. Very lovely.

PEACHBLOW—A different but fascinating pink plicata with a light yellow flush. Both ROSE TOP and PEACHBLOW are tall and well branched. Their delightful large flowers give them fine carrying qualities in the garden.

FIRECRACKER—The most brilliant plicata I have seen. It is a glowing dark burgundy red with a yellow trim. The well formed flowers have good substance. It has great brightness in the garden.

MOONLIT SEA—A novel color combination. Both standards and falls are white, heavily flushed lavender-violet. On the lower edge of the falls, the color darkens to mulberry purple. There is a splash of yellow at the haft which gives it a unique and stunning effect.

ADVENTURE—I was sorry that this plicata was not in bloom.

MINNIE COLQUITT—I like this plicata very much. It is a purple and white of large size and beautifully ruffled form. A very brilliant iris.

FLORA ZENOR—A fine clump in bloom gave an opportunity to see the effect of its color. I think we all realize that the stalk is too tall and a little

spindly for the size of the flower, but when seen in a well established clump, it is striking and worth having for the color alone.

MELITZA—An ivory pink of good form. The intense pinkish tangerine beard seems to enliven the whole flower. An interesting pink.

SPINDRIFT—Deeper in color than FLORA ZENOR and MELITZA. Remembering it from last season, I do not recall the heavy veining on the falls which seems to mar it this year.

PINK EPILOGUE—Good color, substance and branching.

No. 4205—I like this splendid pink seedling of David Hall's. The color is clear and the substance and branching good.

L. MERTON GAGE—A very splendid pink with large flowers, good substance, form and branching.

HARRIET THOREAU—This most attractive iris is an orchid pink self. The large flowers are well proportioned, standards domed and the falls semi-flaring. Substance and branching are excellent. A very fine iris.

CITY OF LINCOLN—A splendid variegata in every way; a brilliant iris.

MARY VERNON—A very outstanding blended variegata. The medium-sized flowers have strong substance and excellent form; branching is very good. The standards are golden bronze flushed rose and the flaring falls are a velvety bright ruby red with an edge of the same golden bronze as the standards.

ARAB CHIEF—One of the brightest and most attractive iris is the orange russet class. It is a near self of rich burnt orange coloring.

TA MING—A very striking iris on the order of NARANJA. It is deep yellow with deeper, almost orange, falls, but its colors are purer and smoother, its flowers wider and of better form and substance. Branching very good. It gives a pronounced orange effect in the garden.

RUBIENT—A velvety pansy purple iris of unusual charm. The standards are deep red purple and the falls deep red purple velvet edged with the color of the standards. This iris has been called "an AMIGO done in red." A favorite with all.

There was a wealth of bloom in the garden and there were many other named varieties performing splendidly. I missed seeing SOLID MAHOGANY, BRIGHT MELODY, SUNSET SERENADE, ACTION FRONT, ADVENTURE and MIRABELLE as they were not in bloom while I was at the Whiting garden. I feel they should be mentioned in connection with this garden for I saw them blooming perfectly last season.

Mr. and Mrs. Whiting are so hospitable and so genuine is their love for their flowers and their pride in them that it is a rare pleasure to enjoy the iris with them.

A visit to the garden of another hybridizer, W. S. Snyder, Sioux City, revealed some outstanding and worthwhile seedlings, some recent introductions of Mr. Snyder's and many of the newer iris from other hybridizers.

Mr. Snyder has done some fine breeding, creating splendid new varieties. One of his most outstanding introductions is BRIGHT MELODY. It is a beautifully finished iris of rich Concord grape coloring. The form, substance and branching are splendid. This iris is a very reliable bloomer and one that is attracting much favorable comment for its rich coloring, which adds brightness to the garden. BRIGHT MELODY bloomed splendidly in four other gardens in Sioux City. It is one of the most fascinating colors in the garden.

One of Mr. Snyder's 1945 introductions is DREAMLAND. It is a rich red self, close to deep hollyhock red according to the *Dictionary of Color*. The flower is of good form with ruffled, well domed standards and ruffled semi-flaring falls. The beard is deep yellow, illuminating the half that is completely free of venations. The substance is heavy and the finish very velvety. The stalk and branching are ideal. DREAMLAND was admired by the visitors at the Sioux City iris show and will fascinate many others for it is a real red, red iris.

Another of Mr. Snyder's 1945 introductions is STELLA VIOLA. The flowers are of clear, gleaming, bright violet and are of large size. The slightly ruffled petals are round and wide. STELLA VIOLA is an early bloomer and has a brilliance that makes it stand out in the garden. The stalk is strong and the placement is good, although the branching is not particularly wide.

ALZA HOLA is an enchanting blend of powder blue and gold. The standards and falls are edged with gold. An established clump of this iris is very effective in the garden. The large, well proportioned flowers of smooth, even texture are carried on tall, graceful stalks.

CAPTAIN ROYAL is a very large "mosaic blue" self. The flowers are large, with domed standards and semi-flaring falls, smooth finish and heavy substance. The branching is good.

IOWA GLORY is a very reliable bloomer. It is a rich blackish red. The flowers are beautifully formed with heavy substance that withstands hot sun and rain.

SIoux CITY is a light heliotrope self with a silvery finish. The large, well formed flowers are borne on strong stalks.

One of Mr. Snyder's 1945 seedlings which I thought was very outstanding, is a clear bright variegata. It will be named ALPINE SUNSET.

LESSER KNOWN IRIS FOR THE GARDEN

DR. GEORGE M. REED

■ MOST IRIS enthusiasts are content to grow the many varieties of tall bearded iris, neglecting or disdaining the other groups. Some gardeners, of course, are interested in the Japanese and Siberian types, of which many varieties have been developed. Unfortunately, the wide diversity of the many species is overlooked. All of these would add interest to the garden and greatly enhance the value of the plantings for many purposes and situations.

The complaint is often made that the iris season is relatively brief. Few know that iris may be had which bloom from earliest spring until August. Again in the fall good displays of some types may be obtained under certain conditions. Thus, by utilizing the available material, iris may decorate the garden practically all the growing season, being adapted to varied conditions and uses. Further, the foliage of many of the species is quite attractive and free from various leaf diseases and affords a suitable background for other flowering plants. The seed is usually produced in great abundance and seedlings may be raised which show interesting variations. It might be mentioned here that the abundant seed habit may result in some of the species being classified as a weed unless due care is taken to remove the developing pods. The yellow flag of Europe is, perhaps, the most notorious in this connection.

Iris for the Garden Border

Many kinds of plants are grown in the garden border beds when they are supplied with good, well drained soil. Several kinds of iris are suitable for such a location and, with their attractive flowers and foliage, add greatly to the border display.

Spurian Group

Among the best of these are the iris belonging to the so-called Spurian group, the very best species of which is undoubtedly *I. ochroleuca*, a native of western Asia Minor. This plant grows to a height of three to four or more feet. It has long leaves, one to two inches broad, and flower stalks which raise the flowers well above the foliage. Several flowers are borne close to the stem and may be in bloom at the same time. The flowers, which last for three or more



Courtesy of Brooklyn Botanic Garden

Left, *I. ochroleuca*; right, *I. verna*.

days, are white with a large yellow zone at the center and base of the fall. The blooming period is after that of the ordinary tall bearded iris and just before the Japanese come into flower.

Ranking next in value to *I. ochroleuca* is *I. aurea*. It is probably native to Kashmir in Asia. It is somewhat similar in habit to *I. ochroleuca*, the leaves and flower stalks not quite so tall. The flowers, a bright yellow in color, are borne several on the stem and last for three or more days.

I. spuria is widely distributed in eastern Europe and northern Africa. It is quite variable in height, ranging from one to three feet. The size and color of the flower show great variation among the plants from different parts of its range. The flowers are rather small and the usual color is some shade of blue-purple. None of the varieties is so attractive as *I. aurea* or *I. ochroleuca*.

I. monnieri may not be a species growing in the wild and its exact relations are not known. It is similar to *I. ochroleuca* except that the color is a uniform yellow over the falls. It has been crossed with *I. ochroleuca* and *I. spuria* and many interesting hybrids have been secured.

I. halophila grows in the salt marshes of Persia, Turkestan, Afghanistan and other parts of Asia. While native to the salt marshes, it does well in the usual garden border. The leaves and flowering

stalks are rather short, one to two feet. The flowers are small, but are produced in great abundance. A great deal of variation in the color, which is usually some shade of pale blue-purple, occurs among different seedlings. In European botanic gardens it is one of the commonest iris. Other species frequently die out in a bed and are replaced by *I. halóphila*, which produces seed in abundance. Accordingly, seed of iris from European sources may come under a great variety of names, but frequently turn out to be this particular one.

I. graminea is also a member of the Spurian group, being native to southern and central Europe and the Caucasus region of Asia. The flowers are small, some shade of violet-blue on a white background. The stalk is so short that the flowers are hidden by the leaves and bracts. The stem is also unusual in that it is decidedly flattened. The flower stems usually do not rise vertically but extend out from the base so that the flowers are readily observed.

Siberian Group

The so-called Siberian group of iris furnish many fine species for the garden border. *I. sibirica* is a native of central Europe and Russia and apparently is not found in Siberia at all. The leaves of this species are usually narrow, the flower stalks tall and slender, extending well above the tips of the leaves and bearing three or more flowers. A related species, *I. orientalis*, is found in Manchuria and Japan. The leaves are broader, the flower stem is shorter, usually bearing only two flowers, which are larger than those of *I. sibirica*. These two species have been hybridized and a large series of named varieties has been derived, ranging from white through various light shades of blue to dark blue and even red-purple. The species are interesting to grow and among the hybrids many fine garden iris are available. Fortunately, these do equally well along the margin of a pool or stream.

There are several other interesting species placed in the Siberian group. One of them is *I. chrysographes*, which is a native of southwestern China. The flower stalk of this species is one and one-half to two feet tall and usually bears several very rich blue-purple flowers with a central patch of golden veins on the fall.

More striking, perhaps, is *I. delavayi*, which comes from western China. The leaves are long, the flower stalks tall (up to four feet) and the flowers are produced abundantly in various shades of pale

blue to red-purple. This iris, along with *I. aurea* and *I. ochroleuca*, bridges the gap between the tall bearded and the later blooming Japanese iris.

Two yellow-flowered species may be mentioned. *I. forrestii* comes from northwestern Yunnan and is low growing. It produces a short stem one to one and one-half feet tall which bears rich yellow flowers. *I. wilsoni* comes from western China, blooms somewhat later than *I. forrestii*, and adds a distinct yellow note to the Siberian group.

Other Species

An especially interesting iris for the garden border is *I. biglumis*, which comes from eastern Asia, China, Manchuria and Tibet. It is usually listed as *I. ensata*, a name which properly belongs to the Japanese iris. *I. biglumis* blooms early in May. At that time the leaves are rather short, so that the flowers on the short stalks are raised to the level of the growing leaves. Later the leaves greatly lengthen, becoming three to five feet long, when the developing seed pod is hidden rather completely. The foliage is fine, being free from various diseases, and greatly enhances the value of the plant for the iris garden. This iris has an extensive fibrous rooting system so it is difficult to transplant and re-establish it. This can be done, however, if proper care is taken. Seed obtained from different localities gives rise to seedlings showing great variation—in fact, so much so that various sub-species have been described.

I. dichotoma is valuable because it blooms in late July and August. Its common name is the “vesper iris,” as the flower buds usually open in the late afternoon and close in the early evening. It is a native of eastern Siberia, Mongolia and north China. The flowers are borne on a much-branching stem. Seeds are produced in great abundance and if the seed is planted early in the spring, blooming plants may be secured the same season. The iris is perhaps best raised from seed, the seedlings showing considerable variation.

I. milesii is a member of the crested iris group. It is a native of Asia, north of Simla. The flowers are not especially attractive but are usually produced abundantly on a branching stalk and the rhizomes are quite hardy and grow vigorously.

Bulbous Iris

There are two groups of bulbous iris which are valuable for the garden border—the Spanish and the Dutch types. The Spanish

iris are derived from *I. xiphium*, a native of Spain, Portugal and North Africa. The usual color of the wild plant is blue-purple but yellow-flowered forms occur. Many garden varieties have been developed, with colors ranging from white, through yellow, various tones of blue and bronze.

The Dutch iris are, in part, derivatives of *I. xiphium praecox*, an early flowering variety. This form has been crossed with the various types of *I. xiphium*, producing a series of garden varieties which bloom somewhat earlier than the Spanish group. Both Dutch and Spanish iris flower along with the tall bearded kinds.

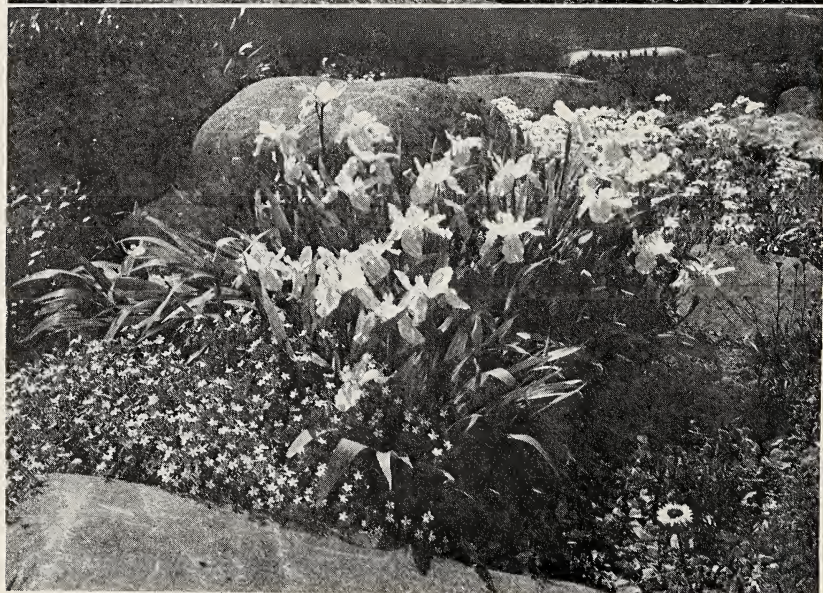
The English iris varieties have been derived from *I. xiphioides*. The wild species is a native of the Pyrenees. The typical color is a blue-purple. Many garden varieties have been developed with a wide range of color, including white, light blue, deep blue- and red-purple. No yellow flowered forms occur. One of the chief values of this group of iris is that they bloom late, coming in the interval between the tall bearded and Japanese iris varieties.

All of these bulbous iris are easily grown. However, the plants soon run out and new bulbs have to be obtained in order to continue the plantings.

Iris for the Rock Garden

Crested Iris Group. Several species of the crested iris are excellent for situations in the rock garden. One of the best is *I. tectorum*, which is a native of central and southwestern China. For centuries it has been cultivated in China as well as Japan, where it was introduced long ago. The Latin name is derived from the fact that in Japan it is frequently grown along the ridge of the thatch-roofed buildings. There are two distinct varieties. The common one is pale blue with darker blotches; the other is white with a yellow area at the base of the fall. Both are easily grown and bloom profusely. The leaves are rather broad, about one foot long. The stem is about the same length, usually bearing two or more flowers. The seeds are formed abundantly and seedlings readily grown.

An excellent plant for the rock garden is *I. gracilipes*, the graceful stemmed iris from Japan. It is quite low growing with short, narrow grasslike leaves. The rhizomes are slender and ordinarily the plant has a tufted appearance. Several flowers are borne on the short, branching stalk. The color is a delicate pink-purple, but a white variety is known.



Courtesy of Brooklyn Botanic Garden

Top, I. cristata; bottom, I. tectorum.

Our native American *I. cristata* is also a valuable plant for the rock garden. The leaves are rather broad and are six to eight inches long. The flower stalks are about the same length as the leaves and the flower is a delicate lavender-blue with a darker line surrounding the crest. A white variety is also known. There is a more dwarf type under the name of *I. lacustris*.

A final member of the crested iris group is *I. japonica*, which is found wild in central China and Japan, and is very commonly found in Japanese parks and gardens where it thrives either in a rock garden situation or in a border. The leaves are broad and one foot or more long. The flower stem is erect and repeatedly branched, bearing many pale, almost white flowers. In the eastern United States this iris is not hardy but it can be grown successfully in a glass house. In California it thrives very well and doubtless would succeed in our milder southern States.

All of these crested iris bloom during the early part of May.

Dwarf Bearded Iris. There are several species of small bearded iris which are well recognized rock garden plants. There is, however, a good deal of confusion as to their relation to each other.

I. pumila is a native of Austria and Hungary, extending eastward to the Caucasus. Plants grown from seed collected in different localities vary a great deal. The leaves are short, five to seven inches long, and the flowers are produced in great abundance, a single one to a stalk. The flower stem itself is very short but the tube of the flower is long, carrying the floral parts well above the level of the leaves. There is great variation in the color of the wild plants, ranging through blue-purple, red-purple, yellow and white flowered forms.

I. chamaeiris is commonly grown under the name of *I. pumila*. It is, however, a very different species, occurring in southeastern France and northwestern Italy. The true *I. chamaeiris* has a distinct, long flowering stalk bearing several flowers. Its tube is short. Many varieties have been selected and named, the colors being various shades of blue- and red-purple. However, yellow and white flowered varieties are also known. The flower stalks vary in length from about six inches to one foot or more in the different varieties. Hybridization between this iris and tall bearded species may have occurred.

Another dwarf species of bearded iris is *I. aphylla*, which is a native of southern Germany, extending through Europe to the Cau-

casus. In the wild, this iris varies a great deal, the usual color being some shade of blue- or red-purple. The stem branches and several flowers are borne on a single stalk. It is very hardy and grows readily.

I. flavissima, which is native to Hungary, extending through eastern Europe to southern Siberia, is a fine yellow-flowered species. The flower stalks are short, bearing two to three flowers bright yellow in color, with an orange beard. The rhizomes are long and slender, producing a spreading clump instead of a dense one. The iris prefers a sandy soil, which must be well enriched with humus.

Bulbous Iris. There are a few bulbous iris which are well adapted for the rock garden. One of the best is *I. reticulata*. The name is due to the network of veins which shows plainly on the outer bulb scales. The species is probably a native of the Caucasus region. When good bulbs are obtained, the iris will continue to multiply and bloom year after year. The narrow leaves come up early in the spring and the flowering stalk follows, carrying the single flower barely to the top of the leaves. The color of the flower is either a rich red-purple or a blue-purple.

I. histrioides comes from northern Asia Minor and does well year after year when once established. The flowers are usually pale blue, with a central ridge of yellow.

I. histrio is another bulbous species which is a native of Asia Minor. It is quite early and has distinct pale bluish purple flowers. It is somewhat more difficult to grow than *I. histrioides*.

Distinct from the crested, dwarf bearded and bulbous iris mentioned above is *I. verna*. This is one of our native American species common in the mountainous areas from Virginia to Tennessee. It is low growing, with leaves about six inches long. The stalk is short and the flower has a long tube which raises the showy parts above the level of the leaves. The flowers are light blue-purple with an orange band in the center of the falls. It thrives in a half-shady position but is not so easy to grow as most of the other dwarf types of iris.

All of these iris are early bloomers. The bulbous *I. reticulata* and *I. histrioides* are the first to appear in late March. In April come

RIGHT: top, *I. aphylla*; bottom, *I. arenaria*.

Courtesy of Brooklyn Botanic Garden



the varieties of *I. pumila*, and in early May the other bearded and crested types.

Iris for Moist Situations

The yellow flag of Europe, *I. pseudacorus*, is characteristically a plant for wet locations. It is a native plant over practically all of Europe, North Africa, and extending into Siberia and Asia Minor. The leaves sometimes grow up to four or five feet long and one to two inches broad. The flower stem is about as long as the leaves, bearing at the upper end several flowers yellow in color, with a zone of brown patches on the base of the falls. The standards are short and small. There is considerable variation in color, very pale yellow and practically white forms being known. Recently, double-flowered forms have appeared in cultivation.

In Japan, this iris has been introduced and it has found the Japanese iris plantations very favorable for vigorous growth. It has spread to such an extent that it is quite common in Japanese iris plantings; in fact, recently it has been labeled as a yellow Japanese variety.

The common blue flags of North America are listed under the names of *I. versicolor* and *I. virginica*. They are somewhat similar in general appearance. Both are adapted for moist situations and are very much worth while in the garden, flowering about the same time as the tall bearded iris. *I. virginica* is usually a larger, more robust plant and in the South is widely spread. The limits of the two species are by no means clearly defined.

Undoubtedly the best species of iris for a moist situation is *I. laevigata*, a native of eastern Siberia, Manchuria, Korea and Japan. In Japan it is very commonly cultivated in temple grounds. The iris has rather broad leaves and a flowering stalk 15 to 24 inches long, two or more flowers being borne in the terminal cluster. The stalk does not stand erect but tends to incline somewhat. The usual color of the wild plant is a blue-purple. Many variations, however, occur among seedlings and plants have been found which probably have the bluest flowers known to occur in any iris. There are white flowered varieties and also the type known under the name of *albo-purpurea*, which has a white background, overlaid with splashes of blue- or red-purple. There are also several double-flowered types in cultivation.

At the Brooklyn Botanic Garden we have succeeded in hybridizing

I. laevigata with *I. versicolor* and *I. virginica*. The flowers of the hybrids may be somewhat superior to those of our North American flags but do not equal those of the other parent. A great deal of sterility has entered in and, consequently, seedlings of the hybrids are difficult to obtain.

The first three species mentioned do well in the ordinary garden border, although they are not nearly so vigorous as when grown in moist locations along a brook or margin of a pond. *I. laevigata*, on the other hand, is distinctly a water-loving iris and very little success is obtained when attempts are made to grow it in the absence of abundant water supply. All of these species come into flower in late May or early June.

There are a few other iris adapted for moist locations. One of these, *I. setosa*, is a native of eastern Asia, including Japan, and extending to Alaska. The dwarfer form, usually known under the name of *I. canadensis*, occurs in Maine, extending to Newfoundland. *I. setosa* grows twelve to eighteen inches in height. The flower stalk bears several flowers, usually of a bluish purple color.

At the Brooklyn Botanic Garden we have succeeded in crossing *I. setosa* with *I. tenax* from the western United States. The hybrid plant, however, proved to be sterile.

I. prismatica, which is native to the United States, especially along the Atlantic Coast from Maine to Carolina, is a desirable garden addition. The leaves are narrow; stalks are slender and tall; flowers are small and graceful, the color usually is some shade of light blue, although white flowered types are known. The blooming period is early June.

In the southern United States, particularly in the Mississippi Valley, there is a distinct group of iris, most of which are not well known to the average iris grower; in fact, they have only come to public attention in comparatively recent years. The species *I. fulva* has been known since the early part of the nineteenth century, and is quite distinct from all other iris because of the peculiar color of the flower. It can be cultivated in the garden and succeeds best in a moist situation. In about 1900 an iris—*I. foliosa*—evidently closely related to *I. fulva* was described from the same general region. Since the early 1920's, surveys have revealed a very large number of different kinds of iris, particularly in Louisiana. Many of these were described and listed as distinct species. One of these, *I. giganteaerulea*, may have good standing as such. The others,

however, are doubtless for the most part merely hybrids between *I. fulva* and *I. foliosa* and *I. giganticaerulea*. Various crosses have taken place in nature, giving rise to the wide variation in the leaf, stalk and flower characteristics. The range of flower color is very great. It runs from shades of blue- and red-purple to pure yellow and the various tones resulting from the combination of yellow with blue- and red-purple.

This group of iris does fairly well along the Atlantic Coast, at least on Long Island. In Williamsburg, Va., there is a fine planting along the margin of the pond in the governor's garden. Iris enthusiasts of the South are pushing strongly the claims of these types. If the situation is favorable, these iris undoubtedly make a valuable addition to the garden plantings. The further advantage is that their period of bloom in this vicinity is between that of the tall bearded and the Japanese group.

There is a wealth of other iris which may soon again be available. These are the *oncocyclus*, *regelia* and *regeliocyclus* species and hybrids. Such valuable plants as *I. susiana*, *I. hoogiana* and *I. gatesii* may be cultivated if suitable conditions are provided.

Finally, in the East we may have some success in growing various western species. In the West, of course, they are well known and successfully grown as garden plants.

IRIS STRUGGLE THROUGH THE WAR IN ITALY

(The following letter was written on September 1 to Howard Watkins, secretary of the American Iris Society, by Countess Senni, a well known member of the Society. We believe members will be interested in the account of the experiences endured both by Countess Senni and her iris.—Ed.)

■ After a long delay, your letter of last February 20 to my sister, Mrs. Henry E. Montgomery, Tuxedo Park, N. Y., has reached me, and I was so very glad to see once more the familiar letterhead of the American Iris Society. The last BULLETIN I received was that of July, 1941. I would be grateful if you would put a note in a future BULLETIN asking all iris growers to send me their catalogs as soon as the mails are opened for this type of mail; the best ad-

dress for the next half-year or so is 6 Piazza Cairoli (not via Cairoli), Rome, Italy.

I have been so cut off from the outside horticultural world for nearly four years that the latest iris novelties I read of were GARDEN MAGIC and MING YELLOW.

The iris on trial in the Colle Oppio park suffered very much; a bomb fell not far away, without doing much damage, but soldiers, children, lack of sufficient police protection and the burning of all park fences, gates, benches, etc., for fuel have reduced this charming little park to ruins. Dr. Ricci, the park director, saved most of the trial iris and carried them off to a secluded corner of the city nurseries, and some day they may be sorted out. All the city parks suffered greatly, as you can imagine, and nearly all the trucks, carts, bicycles for the park guards, hose and tools, were carried off. Dr. Ricci was a wonderful person. He saved over 500 refugees and officers liable to be imprisoned, or carried off to Germany, by putting them on the park department payrolls when he was told to engage several hundred men to repair the destruction in the Campo Verano cemetery in Rome, which was heavily damaged by bombs in the Summer of 1943.

My own garden has suffered heavily from war and from three exceptionally dry seasons. Shrubs which have stood fifteen or twenty Roman summers are dying now; we have little water and no garden hose left. The Germans occupied this house twice—in September and October 1943, and immediately after Anzio landing, from January 23 to June 4, when they left about twenty minutes before the first Americans arrived.

Then there were various Allied troops here for two months before we could finally start repairs. The Tunisian (French Colonial) troops pitched their tents all over my iris beds, and slaughtered their animals right and left; the whole garden reeked of rotting flesh and skins, I was told. All autumn and winter I was busy burying bones. They cut down most of the shrubs and any lower branches of cypresses or cedars which interfered. No other flower could have possibly survived except the iris, but even the iris barely survived, and only 10%, or less, flowered this year. If there had been abundant or even normal rain, perhaps things might have been better. I need not say that nearly all labels vanished. I have a long iris bed on a road, which has often been photographed and reproduced; it is a shadow of itself now, for first the Germans and

then the others ran any trucks or armoured cars they were repairing (in our garage) across this bed to the field to test them.

My own seedlings fared a little better as they were in an unusual corner. In spite of the drought, I saw some promising reds and yellows—there are always any number of good blues and whites, as my stock is full of PURISSIMA blood. PURISSIMA is still, after the fourteen years since Prof. Mitchell gave it to me, my ideal iris and I would like it in every color.

Just as I was beginning to enjoy the flowering of my iris and relax in the happiness of seeing them once more after two such tragic years, the heat began violently, on May 7, and clouds of black beetles descended on every flower—one would open in the morning and by noon be literally chewed to pieces. And so ended the iris season of 1945.

In 1944 I didn't see one flower; I was a "refugee" in town and forbade the family to bring a single flower to me; it would have hurt too much. All the Autumn of 1943 we had cleaned up everything so well and pruned the big umbrella pines so that they would no longer offer shelter to any German cars, as in September my husband, who is an invalid and couldn't travel, had stayed on in our little mountain house. My two daughters and son-in-law and grandchildren were here. We had several bad raids on the near-by airports (that of Ciampino, two miles away, takes its name originally from this house, which on all old maps is marked as the "Farmhouse of Ciampino") and more than once the raids came when I was moving iris seedlings. I would run for "shelter" into my tiny garden hut—the morale effect of a roof was great, and it was easier to stand the noise and shaking when I was close to plants. Afterwards, with my knees shaking and hands trembling, I would go on with the planting, greatly to the admiration of the farm people — they didn't realize that I was reduced to pulp, and the only soothing thing was contact with green plants and cool, damp earth! But on January 18, 19, 20 and 21 the raids were what the British Broadcasting Company called "very heavy," and one iris bed I was doing over will always be associated in my mind with the number of times I dropped plants, tools and labels, and ran into the chapel or the garden house.

The next day we heard of Anzio, and hopes rose high; it was such a complete surprise to the Germans, of whom there were barely 1,500 in Rome at the time.

Alas, on January 23 the Germans filled our house and hearing

again, their clumping boots on the stairs at all hours. My nerves went to pieces, and I left for Rome with my grandchildren, not to return for nine months. My two daughters and son-in-law, however, stayed on and never left the house, taking turns to come in to Rome, and it is because of them we have nearly all our furniture and books, for it was abandoned houses which suffered the most.

The tunnel on the small one track railroad to Frascati runs under our garden, and it was there that the two big guns known as the "Anzio Express" were hidden for over three months, doing tremendous damage on the beachhead. They were on rail trucks and would go down to Ciampino, fire at Anzio, and then return to the tunnel, unmolested by the Allied air forces until May 29, when some very big bombs were dropped at both ends of the tunnel. The bombs hit the kitchen and supply cars, but not the guns, which, however left the next day. One bomb fell 50 yards from the corner of our house—in soft earth, luckily. It demolished a big olive tree, tossing it through the roof of my sitting room, and the others damaged our walls and farm buildings. Later, on June 4, a shell burst just back of the chapel, ripping off the outer wall of the apse, and smashing two big cedars.

The mountain garden, where the iris were far finer than here, must be in a bad way. That remote corner, far from towns and railroads, ended by being almost the middle of the Gothic Line, and the house has been pretty well looted, so almost no one could go there this summer.

A bluff colonel this winter told me he had been up there and had tried to drive his jeep out the back gate, but failed, as it was too steep, and he had a lot of trouble turning around. The family said my face turned quite white for I was sure he crashed into the beds where all my very finest iris were—it was cool and good earth, and the last place a jeep could manoeuvre in!

I have any number of fine discarded seedlings, so I wrote to the War Graves Commissions to ask if they wanted them for the cemetery at Anzio, but have had no answer.

It has touched me more than I can say that the first letters received last summer, after the mails were opened, were from iris friends. Many of these friends I have never seen, but I have written to them for years. Almost the first Allied visitor was Col. Nicholls' son, Lieut. Nicholls, to whom I showed some fine snapshots of his father's God Medal RED VALOR in Colle Oppio.

IRIS GENETICS¹

A. H. STURTEVANT AND L. F. RANDOLPH

■ THE IMPROVEMENT of the garden iris has progressed very rapidly in recent years but our knowledge of the genetics of the various characters concerned with the diversity of types which have been developed has not increased proportionately. The observations of Foster and Dykes on species hybridization and the records of Bliss and Miss Grace Sturtevant on Mendelian inheritance, published in the *Proceedings of the First International Iris Conference* held at Paris in 1922 and shortly thereafter in the early issues of this BULLETIN, are still the main sources of information on these phases of iris genetics.

The chromosome studies of Longley, Simonet, and Randolph during the past fifteen years have laid the ground work for further genetic analyses by showing that most of the older varieties of bearded iris are diploid with 24 chromosomes, that modern varieties are predominantly tetraploid with 48 chromosomes, and that the closely related dwarf bearded iris have 40 chromosomes.² It is clear that these chromosome relationships have exerted a profound influence on the evolutionary history of the existing varieties of garden iris and must be given primary consideration in any comprehensive analysis of the genetics of these varieties.

There are three main sources of the modern varieties of tall bearded garden iris:

1. The European species *pallida* Lam., *variegata* L. and their natural hybrids. This was the origin of the hardy, prolific old-fashioned iris, many of which were introduced into this country approximately 50 years ago and are still to be seen growing in roadside gardens throughout the country. These varieties have 24 chromosomes which usually form 12 pairs, and their Mendelian behavior also suggests that they are typical diploids. It is possible that the diploid species *alberti* Regel, *cengialti* Ambr., and allied forms also entered into the ancestry of these 24-chromosome varieties to a slight extent.

¹Cooperative investigation of the William Kerckhoff Laboratories of the Biological Sciences, California Institute of Technology; Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture; and the Department of Botany, Cornell University.

²Articles on chromosome numbers in iris were published in A.I.S. BULLETIN No. 52:61-66, 1934 and No. 95:37-45, 1944.

2. A group of species and collected varieties from the Eastern Mediterranean region, including *mesopotamica* Dykes, *trojana* A. Kerner, *cypriana* Baker and Fos., RICARDI, AMAS and similar types. These have 48 chromosomes, a robust growth habit and flowers that are much larger than those of the preceding group. They behave as tetraploids, giving more complex genetic results than do the diploids. Perhaps *kashmiriana* Baker should be added to this list, as a 48-chromosome form bearing this name existed in the gardens of Foster and other early European hybridizers; but it seems to us more likely that a 44-chromosome white-flowered form of this species was used by Foster in the development of certain varieties of major importance in the later development of tetraploid iris.

3. Various species of dwarf iris including *chamaeiris* Bert., *olbiensis* Henon, *Reichenbachii* Heuffel, and their derivatives, often incorrectly referred to as *Pumila* dwarfs. These species all have 40 chromosomes and should not be confused with true *I. pumila* L. which has 32 chromosomes.³ The 40-chromosome dwarfs cross readily with the tetraploid and much less readily with the diploid tall bearded sorts to produce partially sterile hybrids with 44 and 32 chromosomes, respectively. There is also a group of natural 44-chromosome hybrids, originally described as species (*albicans* Lange, *aphylla* L., *germanica* L., *florentina* Ker-Gawl, *kochii* Kerner, etc.) which obviously possess 20 chromosomes of dwarf parentage and 24 chromosomes of tall parentage. These natural and artificial 44-chromosome sorts constitute the true intermediates and, with respect to both stature and blooming period, actually are intermediate between the parent sorts.

The true intermediates are highly infertile but produce occasional seedlings when back-crossed to either parent. They should not be confused with tall bearded varieties of reduced stature which have an entirely different chromosome number and breeding behavior. Apparently several important genes now widely distributed among modern tall bearded iris came from the *Chamaeiris* dwarfs by way of these hybrid intermediates. They will be discussed later.

Two further sources of new genes now are being worked into the garden iris. These are members of the *Oncocyclus* and *Regelia* sections of the genus. Their hybrids with *Pogoniris* varieties, as for example WILLIAM MOHR (*PARISIANA* $\times$ *I. gatesii*), are highly sterile and only unreduced gametes of rare occurrence ordinarily are functional. Nevertheless, the few seedlings already obtained from them have served to bring about a diffusion of genes from these sources through the general breeding population of *Pogoniris* varieties. At present this process has only begun. *Pogocyclus* and *Pogoregelia* hybrids and their derivatives still are not very numer-

³Simonet reported chromosome counts of 24 and 32 for *Reichenbachii*, but plants from two different sources in this country, one of which was the dwarf parent of the 45-chromosome CHRYSORO, were found to have 40 chromosomes. Apparently separate entities have been included in this collective species.

ous and most of them can be easily identified. They will not be discussed further, although from many points of view they are the most interesting members of the group.

Most of the existing garden varieties of tetraploid tall bearded iris were derived primarily from crosses involving diploid varieties of group (1) and the tetraploid species and collected varieties of group (2) above. Such crosses of diploids and tetraploids ordinarily are difficult to make and produce only occasional viable seeds, from which triploid seedlings usually are obtained. However, diploid varieties at rare intervals produce eggs and pollen grains with the unreduced number of chromosomes, that is, the germ cells have 24 rather than 12 chromosomes. This provides a mechanism for the production of new and unusual tetraploids directly from the union of such exceptional gametes of a diploid parent with normally reduced gametes of a tetraploid parent. This was the most probable origin of such landmarks in iris breeding as DOMINION, CATERINA, SOUVENIR DE MADAME GAUDICHAU, BRUNO, CONQUISTADOR, ALCAZAR, AMBASSADEUR, LENT A. WILLIAMSON and KING TUT. These varieties and others of similar origin were the "breaks." that have been chiefly responsible for the rapid displacement of the older diploids by tetraploids in which were combined many of the desirable traits of both groups.

When triploid varieties are crossed with tetraploids, seedlings with approximately 48 chromosomes occasionally are produced that are vigorous and fertile in recombinations with other tetraploid varieties. Desirable new types have been obtained in recent years from such triploid varieties as QUEEN CATERINA, VENUS DE MILO and CORONATION but such widely grown triploids as ISOLINE, SAN GABRIEL and FRIEDA MOHR have played very little part in the development of new varieties.

Inheritance in Diploids

In varieties with 24 chromosomes, it is to be expected that ordinary Mendelian principles will apply; one may look for the usual 3:1 ratio in F_2 populations and the 1:1 back-cross ratio for characters that are dependent on a single gene for their expression, or for some modification of the 9:3:3:1 ratio when two independently inherited characters are involved. These ratios are characteristic of typical diploid organisms.

With respect to the 24-chromosome tall bearded varieties of gar-

den iris derived from *I. pallida* Lam. and *I. variegata* L., there is the possibility that the 12 chromosomes making up the reduced gametic number are not all equally unlike. Simonet found that among the dwarf bearded iris, the germ cells of *I. attica* Regel. have only 8 chromosomes and those of the true *I. pumila* L. have 16 chromosomes. There is then the possibility that the primitive base number for the genus is not 12 but 8 or possibly even 4, as Simonet has suggested. If this is true, some of the 12 chromosomes present in the germ cells of the tall bearded diploids may be duplicates of other members of the set. However, the available genetic data seem to indicate that diploid inheritance prevails among these 24-chromosome varieties, and until there is more definite proof of their heteroploid character it seems advisable to assume that they are true diploids.

There are several characters of common occurrence among diploid varieties that seem to exhibit typical Mendelian behavior. White appears to be a simple recessive in crosses where yellow (see below) is not present. There should, then, be three types of individuals; homozygous dominants (WW), such as certain *pallida* types which breed true for blue purple or other shades of anthocyanin color; heterozygotes (Ww) that are indistinguishable from the homozygous dominants but segregate for white when selfed or sib crossed (probable examples are ARCHEVEQUE and WYOMISSING); and homozygous recessives (ww) that breed true for white (CHARTIER, SOLITAIRE and TAJ MAHAL probably are recessive whites).⁴

Another recessive is the *plicata* pattern. Here we have homozygous dominants (ROSULTRA), heterozygotes (QUEEN OF MAY, NUEÉ D'ORAGE) and homozygous recessives (MADAME CHEREAU, JEANNE D'ARC, PARISIANA, STIPPLES).

Yellow is evidently dependent on a dominant gene for its expression. In parts of the flower that would otherwise be blue or purple, the presence of this gene gives a brownish or reddish color;

⁴Homozygous dominants when selfed or mated together breed true for the character concerned; mated to heterozygotes or to homozygous recessives, their offspring will show the dominant character in the first generation but recessives may appear in later generations.

Heterozygotes selfed or mated together will give a ratio of three dominants to one recessive; heterozygotes mated to recessives will give a ratio of one dominant to one recessive.

Homozygous recessives when selfed or mated together will breed true indefinitely for the recessive character.

in the absence of blue or purple, that is, in association with white, it gives pure yellow. It seems probable that the homozygous type YY is deeper yellow than the heterozygote Yy . For example, *PLUIE D'OR* is probably YY ; *CHASSEUR* and *SHENIKAH*, Yy . Most yellows have standards and falls of approximately the same intensity and the color is evenly distributed over the petal, but yellow bicolors and reverse bicolors with the standards of a deeper color than the falls are not unknown, and a white or creamy patch of varying extent may be present in the center of the falls. Little is known about the inheritance of the variations in the yellow pattern. This gene ordinarily will produce a uniform yellow color in any area where the blue or purple is removed; hence the possibility of yellow plicatas. The yellow gene has little obvious effect when in combination with dark purple but progressively lighter shades of purple and red produce brownish purples and blends ranging from the tannish yellow of *GOLDEN FLARE*, through an almost infinite variety of pinkish or tannish yellows and brownish or reddish purple to the deep brownish purple blends, as illustrated by such old diploid varieties as *AUTUMN DAWN*, *JACQUESIANA*, *MIDGARD*, *SHOT SILK*, *ELDORADO* and *QUAKER LADY*. The yellow flower color of modern tetraploid varieties also behaves as a dominant, exhibits dosage effects and reacts with purple anthocyanin color to produce various types of blends.

There are a number of other characters of common occurrence in both the older diploid varieties and in the newer tetraploid varieties that probably have a simple genetic basis but about which there is some uncertainty. According to Miss Sturtevant, the bicolor pattern is dominant to self color. It occurs with the dominant Y gene for yellow flower color in variegatas and with the recessive y in *amoenas* and *neglectas*. The relation between the *amoena* and the *neglecta* patterns is not clear, although in certain crosses the white standards of the *amoena* type are recessive to the colored standards of *neglectas* or blue-purple bicolors. According to Bliss⁵ brown-tipped beard and pigmented leaf base are dominants, although more than one gene may be involved in the latter case. Velvety falls are variously reported to be either dominant or recessive to smooth or satiny ones. The lined haft, originally associated with the variegata pattern, is dominant to smooth haft. Pinched, recurved falls are said to be dominant to flaring falls, especially in crosses between dwarfs and

⁵Journ. Royal Hort. Society, London, vol. 45, pp. 289-292, 1919-1920.

talls; but within the diploid tall group one of us has evidence that the narrow pinched falls of MADAME CHEREAU are recessive to the broader ones of ROSULTRA. It has been suggested that heavy substance is recessive to weak, and fragrance recessive to its absence; in both these cases the situation probably will prove to be more complex when more adequate data are available. The same comment may well be found to apply to a number of the characters previously mentioned.

Resistance to disease among plants in general may be either dominant or recessive. In iris, resistance to bacterial soft rot apparently is dominant to susceptibility but dominance often appears to be incomplete, suggesting possible dosage effects. Very little is known about the inheritance of other iris diseases and the same is true of tenderness, fall dormancy, winter hardiness and various additional characteristics which influence the adaptability of iris to a wide range of cultural conditions. At the present time there is urgent need for genetic experiments involving properly controlled crosses and sizable populations in which all of the offspring are adequately recorded and described.

Inheritance in Tetraploids

The genetics of tetraploids is much more complex than that of diploids. This is because in the tetraploid each gene is represented four times, once in each of the four chromosomes of any one kind, rather than only twice as in the diploid. Diploids have but one heterozygous or segregating type (Aa), in addition to the dominant (AA) and the recessive (aa) homozygous or true-breeding types. Tetraploids have three heterozygous types ($AAAAa$, $AAaAa$, $Aaaa$) in addition to the dominant ($AAAA$) and recessive ($aaaa$) homozygotes. The five types of the tetraploid are known as quadriplex, triplex, duplex, simplex and nulliplex, depending on whether the dominant gene is represented four times, three times, twice, once or not at all. The occurrence of these types not only influences ratios but gives a greater range of possible "dosage effects." If, as suggested above for diploids, YY contains more yellow pigment than Yy , there may be four grades of yellow pigmentation in the tetraploid instead of the two that are possible in the diploid. It has been found in other organisms that such dosage effects may be evident in tetraploids even for genes that show no obvious effect of this kind in diploids. Therefore, it may be expected that tetra-

TYPES OF CROSSES	RANGE IN EXPECTED RATIOS OF DOMINANTS TO RECESSIVES WITH RANDOM PAIRING		RATIOS OF DOMINANTS TO RECESSIVES WITH SELECTIVE PAIRING
	<i>Genes near the centromere</i>	<i>Genes far from the centromere</i>	
$\text{AAAA} \times \text{AAAA}$	1:0	575:1	1:0
$\text{AAAA} \times \text{AAaa}$	1:0	107:1	1:0
$\text{AAAA} \times \text{Aaaa}$	1:0	43:1	1:0
$\text{AAAA} \times \text{aaaa}$	1:0	23:1	1:0
$\text{AAaa} \times \text{AAaa}$	35:1	21:1	15:1
$\text{AAaa} \times \text{Aaaa}$	11:1	22:3	7:1
$\text{AAaa} \times \text{aaaa}$	5:1	7:2	3:1
$\text{Aaaa} \times \text{Aaaa}$	3:1	12:5	3:1
$\text{Aaaa} \times \text{aaaa}$	1:1	11:13	1:1

ploids will in general be less easily classified into visibly distinct types; more intermediate grades are to be expected for many characters.

In the diploid there are only two possible types of crosses that will produce segregating progenies; these are the well known $Aa \times Aa$ and $Aa \times aa$ combinations which produce the familiar 3:1 ratio in F_2 and the 1:1 backcross ratio of dominants to recessives. In the tetraploid there are nine possible types of crosses from which segregating progenies may be obtained. These are listed in the accompanying table together with various ratios which may be expected from them.⁶

Tetraploid inheritance is complicated not only because of the existence of nine types of segregating crosses but because from the same cross different ratios may be obtained from genes which give identical ratios in diploids. This is due (1) to variations that may occur in the pairing of the four chromosomes of a kind during the

⁶The ratios given in this table are strictly applicable only to tetraploids with the balanced complement of 48 chromosomes. The occurrence of plants, either as parents or among the offspring, with one or a few chromosomes more or less than the balanced number may affect these ratios appreciably. In these off-type plants, certain chromosomes will be represented either three or five times instead of the four times postulated above and the ratios for genes located in these particular chromosomes will be modified accordingly. But for most practical purposes this complication can be ignored because of the infrequency with which it affects individual genes.

formation of the germ cells, and (2) to the fact that in tetraploids with random pairing of homologous chromosomes the proportions of dominants and recessives in the progeny is influenced by the position of the gene in the chromosome with reference to the centromere or specialized region concerned with the movement of the chromosome in the division process.

If the four chromosomes of a kind form a quadrivalent group and the pairing and subsequent two-from-two assortment of the members of the quadrivalent is at random, a lower frequency of recessives will be obtained when the gene concerned is near the centromere (column 1) than will be obtained when the gene is far from the centromere (column 2). Selective pairing of the chromosomes without quadrivalent formation and of such a nature that the homologous chromosomes contributed by one parent always pair with those contributed by the other parent will increase still further the frequency of recessives (column 3); under these conditions the location of the gene in the chromosome will not influence the proportions of dominants and recessives to be expected from a particular cross.

There is also the possibility that the two homologous chromosomes contributed by each parent may form pairs, especially if a "wide" cross is involved. If this happens and if the parents were homozygous for the genes concerned there will be in future generations no segregation of the recessive genes contributed by either parent.⁷ However, if both parents were heterozygous, segregation would result and a 15:1 ratio would be expected.

Unfortunately, very little is known about the synaptic behavior of the chromosomes in Pogoniris tetraploids and nothing whatever is known about the location of individual genes in any of the chromosomes. Simonet reported the occurrence of 12 bivalents plus 12 univalents in triploids and 22 to 23 bivalents in tetraploids derived from $2n \times 4n$ crosses, with multivalents occurring very rarely; but

⁷This is known to happen in certain wide crosses of plants other than iris and may very well account for the absence of recessive whites among tetraploid iris that originated from crosses of diploid recessive whites with blue purple tetraploids. For example, a tetraploid originating from an unreduced germ cell of a diploid white (ww) crossed with a normally reduced gamete of a purple tetraploid (WW) would, if the maternal and paternal chromosomes formed pairs *inter se*, breed true as a permanent heterozygote ($WWww$). But if each parent contributed heterozygous gametes (Wu) to the cross and the same type of pairing occurred, a 15:1 segregation would result.

this question needs further study in view of our limited observations that quadrivalents are of frequent occurrence in *I. mesopotamica* and *I. Ricardi*. Because of their mixed ancestry, it is quite possible that the chromosomes of certain varieties may undergo selective pairing while those of other varieties may pair at random, either with or without quadrivalent formation. It is, in fact, entirely possible that both types of pairing may occur in the same variety.

Although in iris nothing is known at present about the location of particular genes in relation to the centromeres of the chromosomes, it can be assumed from what is known of other organisms that the genes of iris are distributed throughout the length of the chromosomes at varying distances from their centromeres. This means that the ratios for different genes may be expected to vary within approximately the limits specified in the table for each of the nine types of crosses. It should be possible for iris breeders to utilize this table as a guide in estimating the number of seedlings that would have to be grown to be reasonably certain of obtaining individuals of the desired type from crosses involving single gene differences, provided the genetic constitution of the parents can be determined with reasonable accuracy.

The manner in which the expected ratios given in the above table are computed may be illustrated very simply for certain conditions, as, for example, for the conditions that are applicable to the 35:1 ratio obtainable from selfing or intercrossing duplex heterozygotes (line 5, column 1 of the table). Assuming a two-from-two segregation of the four chromosomes having the constitution *AAaa*, the possible combinations of genes in the resulting germ cells and their relative frequency will be $1 AA + 4 Aa + 1 aa$. As a result of the chance recombination of these germ cells, which is illustrated in the accompanying checkerboard arrangement, it is apparent that the numbers of individuals carrying one or more dominants is 35 and that there is but one completely recessive combination.⁸

⁸Detailed consideration of the types of chromosomes and gene behavior responsible for changes in the proportions of dominants and recessives to be expected from this particular cross (ranging from a 35:1 to a 15:1 ratio) and the comparable changes in the proportion of dominants and recessives to be expected from other types of tetraploid crosses, is not within the scope of this discussion. Further details may be obtained from the original papers of Haldane (*Journ. of Genetics* 22: 359-373, 1930), Mather (*Journ. Genetics* 32: 287-314, 1936) and the recent review of Little (*Botanical Review* 11: 60-85, 1945).

	1 AA	4 Aa	1 aa
1 AA	1 AAAA	4 AAaA	1 AAaa
4 Aa	4 AAAa	16 AAaa	4 Aaaa
1 aa	1 AAaa	4 Aaaa	1 aaaa

Similarly, the 5:1 back cross ratio (line 7, column 1) may be computed very readily from the same genetic frequencies of the duplex heterozygote ($1 AA + 4 Aa + 1 aa$) which combine with the one type of gamete (aa) from the recessive parent to produce $1 AAaa + 4 Aaaa + 1 aaaa$, or five dominants to one recessive.⁹

The simplest ratios obtainable in tetraploids are those involving simplex heterozygotes. The last two crosses listed in the table are of this type. If one dose of the dominant completely dominates three doses of the recessive gene, and this is often but not always true, the F_2 ratios expected from selfing or sib-crossing the simplex heterozygote approximate a 3:1 (line 8 of the table, page 58). When the simplex heterozygote is back-crossed to the nulliplex recessive (line 9), approximately equal numbers of dominants and recessives will be expected.

Recovery of Recessives from Tetraploids

If a tetraploid that is homozygous for a recessive gene ($aaaa$) is outcrossed to another tetraploid that is homozygous dominant ($AAAA$), the resulting F_1 plants will be the type $AAaa$. On crossing these together, the maximum frequency of recovered recessives to be expected is 1 in 16, the minimum is zero (with selective pairing). The zero frequency is, under these conditions, quite unlikely; the lowest frequency that is probable is 1 in 36.

If it is desired to combine two recessives, a segregating population containing a large number of individuals must be grown. Suppose, for example, a tangerine-bearded plicata is desired. On the assumption that no plants are available that carry even a single dose of either recessive together with four doses of the other recessive

⁹In computing the tetraploid ratios one dose of the dominant gene was assumed to be as effective as two, three or four doses. In other words, possible dosage effects were disregarded and combinations of genes with one or more dominants were all classed together as dominants; only those combinations without any dominants were classed as recessives.

sive, the frequency of the desired double recessive type in F_2 will lie somewhere between (1 in 16^2), or 1 in 256, and (1 in 36^2), or 1 in 1296. In other words, the rearing of 1000 F_2 plants would not give a very large chance of producing a tangerine-bearded plicata. The comparable frequency for diploids is of course (1 in 4^2) or 1 in 16. Obviously it is much more difficult to combine two recessives in tetraploid stocks than it is in diploid stocks.

Under these conditions the wise procedure with tetraploids would be to cross as many different and unrelated plicatas as possible to a like diversity of tangerine-bearded varieties for the purpose of discovering varieties carrying hidden recessives, which would simplify the problem. If either recessive appears in the first generation from any of these crosses, then the use of such single recessive F_1 's preferably mated together, otherwise crossed to sibs or if necessary to unrelated F_1 's, will greatly increase the number of the desired type in F_2 .

Further, analysis of pedigrees should be made in an attempt to discover plants homozygous for one recessive which also may carry one or more doses of the other recessive. To continue with the example cited above, if one wished to obtain a plicata type with tangerine beard, the selection of parents such as SPINDRIFT, which has a tangerine beard and plicata ancestry, and FLORA ZENOR, which also has a tangerine beard and is related to the plicatas, TIFFANY and SIEGFRIED, might simplify the problem.

If this plan fails, that is, if no double recessives (plicatas with tangerine beard) are obtained in F_2 populations of reasonable size, the remaining alternative is to mate F_2 plicatas to F_2 tangerine beards, using as many individuals as practicable in such crosses. If the desired type does not appear in F_3 , the F_2 crosses may be repeated with F_3 plants to produce the desired type in F_4 .

The probability of obtaining the desired result in the F_2 and subsequent generations is proportional to the number of individuals involved. The practice followed by most iris breeders of growing small number for seedlings from many different crosses has resulted in the carrying of "hidden recessives" through numerous generations of cross breeding. With such a system of breeding the appearance of such characters as the tangerine beard is largely a matter of chance, unless pedigrees are carefully analyzed in planning crosses.

If it is desired to incorporate particular characters such as resistance to soft rot or winter hardiness in an otherwise satisfactory variety the back-cross method, which is now being very successfully

used in the improvement of many horticultural and crop plants, may be used. This method involves simply the intercrossing of variety A, which is to be improved, with variety B, the one carrying the desired new character; this to be followed by successive back-crossing to variety A, if the character in question is a dominant, of selected hybrid individuals having the desired character of B plus as many as possible of the characters of A. If the character to be incorporated is a recessive, the selection for back-crossing must be made in the F_2 rather than in the F_1 . With the back-cross method it is possible to recover most of the characteristics of the original variety, improved by the addition of the new character, in not more than three or four generations of back-crossing if the varieties used are otherwise dissimilar, and in fewer generations if the varieties are otherwise similar.

Linkage

Characters whose genes are near together in the same chromosome tend to be inherited together. Two or more characters of this sort that enter a cross together will often reappear together in the segregating F_2 or back-cross families. For example, in progenies of ISABELLINA and SPINDRIFT homozygous for tangerine beard and segregating for height of plant and for the shade of "seashell pink" characteristic of the parents, which were seen among Lapham's seedlings at WAKARUSA in 1945, it was noted that most, but not all, of the plants with pink flowers were relatively short, while those having other colors ranging from white through pale blue to deeper shades of blue and lavender averaged much taller. This suggested that height of plant was linked with pink flower color. Occasional tall plants with pink flowers in these same progenies may have been "cross-over" types in which the linkage was broken. In these families from ISABELLINA and SPINDRIFT it was also noted that the tangerine beard was present not only among the "seashell pinks" but also among the whites, yellows and blue-purples of varying shades. Thus there was no evidence of linkage involving beard color and the color of the flower, although most of the new pink varieties have the tangerine beard. Other examples of possible linkage may be cited but such cases are rather rare. This is to be expected in the present state of our knowledge of iris genetics as there are twelve chromosomes in which the genes of special interest to the iris breeder undoubtedly are distributed at random. Relatively few characters

have thus far been subjected to genetic analysis that would demonstrate linkage relationships. As additional characters are analyzed, linkages undoubtedly will appear.

In general, linkage will be much easier to study in diploids than in tetraploids. We are not aware of any examples in diploids varieties of iris, unless the beard condition peculiar to *plicata* types, cited by Bliss (l. c.) is such a case.

Character Analysis in Tetraploids

It should be evident from the foregoing discussion that a coherent account of the genetics of iris tetraploids can hardly be expected until many more controlled crosses are recorded. However, it is possible to record a limited number of observations at the present time.

Perhaps the most striking condition to be noted among tetraploid varieties in contrast to that already noted for diploid varieties is that with a few possible exceptions, white is dominant in the tetraploids, rather than recessive as it is in the diploids. Most of the tetraploid whites, either alone or in combination with yellow, can be traced through an unbroken line of whites (or yellows) back to KASHMIR WHITE, MISS WILLMOTT, or ORIANA. The chief exceptions are the three Dykes productions, MOONLIGHT, GUDRUN and W. R. DYKES, all with unrecorded pedigrees, but presumably all tracing also to KASHMIR WHITE or MISS WILLMOTT.

ORIANA had a white intermediate parent and its white was probably derived from *albicans*, *florentina*, or some similar 44-chromosome hybrid having as one parent a 40-chromosome dwarf carrying the dominant white character. The origin of KASHMIR WHITE and MISS WILLMOTT is unknown, though often speculated about. It seems most probable that they, too, have 44-chromosome ancestry. On this basis, the dominant white of these tetraploids and their numerous derivatives represents a gene that has come neither from the diploid *variegata-pallida* group nor from the wild tetraploids but through the intermediates, from some *chamaeiris* dwarf or closely related form.

We are fully aware of the fact that this interpretation of the origin of MISS WILLMOTT and KASHMIR WHITE is not in agreement with that of Denis¹⁰ who obtained white seedlings by crossing *cypriana* and *pallida* and *pallida*-like seedlings by selfing MISS WILLMOTT.

¹⁰A. I. S. BULLETIN No. 2, pp. 25-26, 1921.

Therefore, he concluded that MISS WILLMOTT and KASHMIR WHITE originated from the cross *cypriana* $\times$ *pallida*. Apparently, Denis did not appreciate the fact that whites segregating in the progenies of blues or purples must be recessive whites, genetically unlike the dominant white of MISS WILLMOTT and KASHMIR WHITE, which in the heterozygous condition will throw blues and purples among its selfed progeny.¹¹

Another character of the tetraploids which may have originated from the true intermediates is the blue beard of BRUNHILDE, HARMONY, DYMIA, MODOC, SOUVENIR DE MADAME GAUDICHAU, etc. This character apparently was derived from *aphylla*, of which there are forms with both 44 and 48 chromosomes. The gene is obviously a dominant; but the relation between the wholly blue beard of DYMIA and that in which the hairs are yellow with a blue tip (MODOC) is not clear. Are we again dealing with a dosage effect, or are these altogether different genes?

The yellow and plicata genes of the tetraploids are evidently the same as those of the diploids, and were in all probability derived from diploid ancestors. Apparently the same applies to the amoena and neglecta patterns and to velvety falls.

The tangerine beard discussed by Douglas¹² seems to be a new recessive character. From the pedigrees given, one may surmise that it was present (in heterozygous form) in the diploids (DOG-ROSE, NUEÉ D'ORAGE, AIRY DREAM) and in one, two or three doses in several widely-used tetraploids, e.g., W. R. DYKES, RAMESES, JEB STUART and MOROCCO ROSE. Presumably the tetraploids received it from their diploid ancestors. The new shade of pink, often associated with the tangerine beard, obviously requires a neutral background for its expression. Whether a dominant or a recessive white or near-white is concerned is unknown, but the pedigrees indicate that the dominant white of W. R. DYKES, GUDRUN, ARGENTINA, etc., is involved.

The fragmentary character of present knowledge of iris genetics must be obvious from this account of the present status of the sub-

¹¹Additional evidence of the close relationship of KASHMIR WHITE and MISS WILLMOTT to *kashmiriana* was published by Colonel J. C. Nicholls in the Iris Yearbook, England, p. 37, 1935. In this connection the statement of Dykes (*Handbook of Garden Irises*, p. 214) that "the color of the commonest form [of *kashmiriana*] is a creamy white with a beard of white hairs, tipped with yellow along the haft" is especially noteworthy.

¹²A. I. S. BULLETIN No. 92, pp. 38-49, 1944.

ject. There is need for additional data from segregating populations of adequate size to determine the mode of inheritance of specific characters. The complexities of segregation and recombination in the tetraploid populations from which present day varieties of tall bearded iris have been selected offer a challenge to anyone interested in the application of genetic principles to the problems of the plant breeder, or in the solution of problems in a field of genetics which has not been adequately explored.

IRIS RATINGS, 1945

Permanent Ratings—20 or more votes necessary

<i>Name</i>	<i>Originator</i>	<i>Rating</i>	<i>No. Votes</i>	<i>High</i>	<i>Low</i>
ACTION FRONT	P. Cook	88	40	92	79
ALZA HOLA	Snyder	85	28	91	75
CHIEF POKINGFIRE	DeForest	87	38	91	83
CHIVALRY	Wills	90	38	95	84
DREAMCASTLE	P. Cook	88	36	96	80
EXTRAVAGANZA	Douglas	89	22	93	85
FIRECRACKER	Hall	86	63	97	80
FLAMELY	P. Cook	88	31	91	85
FRANCELIA	McKee	89	31	95	85
GRACE BALLARD	H. P. Sass	87	26	90	75
GYPSY BARON	Schreiner	84	24	89	75
JAVA SKY	Wareheim	87	24	93	80
KATHARINE FAY	Fay	89	44	97	83
LORI MAY	DeForest	86	28	89	83
MOONLIT SEA	J. Sass	85	58	95	70
NED LEFEVRE	Lapham	86	36	90	75
OVERTURE	Hall	87	41	93	80
ROSE TOP	H. Sass	88	21	95	84
SEQUATCHIE	Caldwell	88	20	90	85
SOLID MAHOGANY	J. Sass	89	36	93	84
TIFFANJA	DeForest	88	55	95	80
TOBACCO ROAD	Kleinsorge	89	56	93	85

OTHER IRIS RATINGS
(*At least five votes received*)

<i>Name</i>	<i>Originator</i>	<i>Rating</i>	<i>No. Votes</i>	<i>High</i>	<i>Low</i>
ARAB CHIEF	Whiting	87	5	89	85
BANDMASTER	Hall	88	18	93	80
BERKELEY GOLD	Salbach	90	17	94	88
BERTHA GERSDORFF	J. Sass	88	5	92	85
BLACK BANNER	Nicholls	88	5	92	85
BLACK & GOLD	Kleinsorge	87	11	90	85
BLUE GLOW	Nicholls	87	5	90	85
BLUE RHYTHM	Whiting	90	9	94	87
BRIGHT MELODY	Snyder	90	11	93	86
BRONZE COPPER	Salbach	87	12	90	85
BRYCE CANYON	Kleinsorge	90	32	93	85
CALDERILLA	DeForest	88	6	91	86
CAPE BON	Tomkins	90	6	93	84
CARILLON	Wills	87	13	90	82
CASA MORENA	DeForest	88	23	91	82
CASCADE SPLENDOR	Kleinsorge	90	6	92	89
CHAMOIS	Kleinsorge	88	15	91	86
CHANTILLY	Hall	89	7	90	88
CHIPPEWA	Salbach	85	7	90	81
CLARET VELVET	Weed	86	6	89	85
CLOUD CASTLE	Graves	87	11	90	85
CONCERTO	Tomkins	86	5	90	80
CORONADO	Tomkins	90	6	93	89
COTILLION	Caldwell	89	5	90	87
COUNTRY LASS	Walker	87	6	90	83
DAWN OF GOLD	Salbach	87	5	90	85
DOWN EAST	Tobie	88	6	90	86
DREAM GIRL	Hall	87	10	90	84
DREAMLAND	Snyder	90	6	93	87
DUET	Grant	86	11	90	82
EASTER CANDLE	Essig	89	5	90	88
FANTASY	Hall	86	6	89	84
FORTUNE'S FAVOR	DeForest	87	5	88	85
GALLANTRY	Whiting	88	5	89	86
GARDEN GLORY	Whiting	90	11	93	85
GAY SENORITA	Salbach	87	9	90	80

<i>Name</i>	<i>Originator</i>	<i>Rating</i>	<i>No. Votes</i>	<i>High</i>	<i>Low</i>
GOLDBEATER	Kleinsorge	88	22	92	84
GOLDEN RUSSET	Hall	88	5	94	85
GYPSY	Kleinsorge	88	9	92	85
HARRIET THOREAU	P. Cook	89	19	93	84
HELEN MCGREGOR	Graves	91	9	94	90
HIT PARADE	Hall	88	5	89	85
HONEY FLOW	Tomkins	90	5	92	87
IDANHA	Kleinsorge	87	8	90	82
ILLUSION	Kleinsorge	87	6	90	82
INNOVATION	Hall	88	5	89	85
ILSE LOUISE	K. Smith	86	6	89	83
JAKE	J. Sass	88	8	90	85
JASMINE	Grant	89	15	92	79
KATHERINE LARMON	Graves	88	5	90	86
LADY OF SHALLOT	Schreiner	87	7	93	80
LADY MOHR	Salbach	90	33	99	82
LAKE BREEZE	Fay	90	12	92	86
LAKE GEORGE	K. Smith	89	9	91	86
L'LUVIA D'ORA	DeForest	85	5	87	84
LOTHARIO	Schreiner	88	12	90	85
LOUISE BLAKE	K. Smith	86	17	90	80
LULLABY	Hall	85	5	88	82
LYNN LANGFORD	Hall	89	8	93	86
MAGIC CARPET	Schreiner	86	7	90	82
MAIDEN BLUSH	Hall	86	9	87	84
MAJENICA	P. Cook	87	8	90	84
MANDALAY	Hall	88	14	90	85
MASTER CHARLES	Williamson	89	20	91	87
MEXICO	Kleinsorge	88	18	91	85
MISSION MADONNA	Essig	89	6	93	86
MISTY ROSE	Salbach	87	6	89	85
MOLLY MAY	DeForest	86	6	87	85
MOONBEAM	H. P. Sass	89	5	90	87
MOONTIDE	McKee	90	7	91	89
MOUNT HERMON	Lowry	90	10	92	89
NEW SNOW	Fay	92	5	94	90
ORANGE GLOW	Cassebeer	88	6	89	86
ORCHID LADY	Salbach	88	7	90	83

<i>Name</i>	<i>Originator</i>	<i>Rating</i>	<i>No. Votes</i>	<i>High</i>	<i>Low</i>
OREGON TRAIL	Kleinsorge	87	19	91	82
ORMACO	Kleinsorge	86	10	89	85
PACIFIC SUNSET	Salbach	89	8	93	86
PAINTED DESERT	Milliken	89	6	92	85
PEACHBLOW	H. P. Sass	87	5	90	84
PEACH GLOW	Kleinsorge	87	17	94	83
PREMIER PEACH	Hall	89	7	94	86
PRETTY PENNY	DeForest	85	6	87	82
RADIANT KNIGHT	Kleinsorge	86	5	87	85
RANGER	Kleinsorge	88	19	94	80
REDWARD	P. Cook	89	12	92	85
REDWYNE	McKee	89	12	92	86
REVEILLE	Tobie	88	7	90	87
RIO ORO	DeForest	86	8	89	82
ROCKET	Whiting	88	7	92	86
ROSE PEARL	Salbach	85	7	88	82
ROYAL SCOT	Hall	86	15	92	83
RUBIENT	Whiting	87	11	92	85
RUSSET WINGS	Wills	88	9	90	81
SERENATA	Milliken	88	5	91	85
SHARKSKIN	Douglas	88	12	90	84
SHISHALDIN	DeForest	89	6	92	88
SONRISA	DeForest	88	21	92	85
SOUSON	Essig	88	7	90	86
SPINDRIFT	Loomis	88	21	92	85
STYLE	Nicholls	88	7	90	85
SUNDIAL	Wills	86	6	87	85
SUNNY RUFFLES	Waters	89	6	93	87
SUZETTE	Knowlton	91	9	95	87
SYLVAN BELLE	Peck	88	6	92	85
SYLVIA MURRAY	Norton	88	8	94	89
TEA ROSE	Whiting	89	17	92	85
THREE OAKS	Whiting	88	9	90	86
VATICAN PURPLE	Whiting	88	5	93	86
VISION FUGITIVE	Wareham	89	9	96	87
VISION OF MUZA	DeForest	85	8	92	75
WHITE WEDGEWOOD	Grant	88	11	92	83
WORTHINGTON	P. Cook	90	7	96	85

COMMENTS ON VARIETIES

ACTION FRONT

Very red and a good doer.—*Don Waters, Elmore, Ohio.*

ADVANCE GUARD

Excellent tall, lavender and white plicata that may prove outstanding. Tall, well branched.—*Thomas Craig, Los Angeles, Cal.*

ADVENTURE

Adventure should be exciting. This white and brown plicata is far from that, though it has its good points in form and substance.—*Ralph M. Schroeder, Warrensburg, Ill.*

Surpassed by TIFFANJA in this color range.—*F. W. Cassebeer, Blauvelt, N. Y.*

ALASTOR

This unusual pink iris looks worth trying but it may need partial shade or cool weather to be at its best.—*Ralph M. Schroeder, Warrensburg, Ill.*

ALPINE GLOW

Color almost like AUBANEL but form is infinitely better. Makes a bright pink effect in sunlight.—*F. W. Cassebeer, New York, N. Y.*

AMITY

This fine white iris from Mrs. Corey is marked and washed with lavender blue. A distinct iris with sturdy stalks, good form, and branching.—*H. W. Knoulton, Auburndale, Mass.*

AMIGO

Outdid itself with 36- to 38-inch stems in a clump which produced eleven stalks.—*Don Waters, Elmore, Ohio.*

AND THOU

A good flower but not outstanding among other whites.—*Ralph M. Schroeder, Warrensburg, Ill.*

ATROUS

Almost as dark as STARLESS NIGHT and a lot better flower.—*F. W. Cassebeer, New York, N. Y.*

AZTEC COPPER

One of the most discouraging colors I have ever seen in a garden.—*Ralph M. Schroeder, Warrensburg, Ill.*

AZTEC GLORY

Not far removed from COPPER ROSE in color, and not as good a flower.—*Ralph M. Schroeder, Warrensburg, Ill.*

AZURE SKIES

Fine for a fairly low garden clump, very floriferous, grows well.—*F. W. Cassebeer, New York, N. Y.*

Continues to be worth growing.—*Ralph M. Schroeder, Warrensburg, Ill.*
Excellent form and color.—*Carl C. Taylor, San Bernardino, Cal.*

BALL O'GOLD

Golden yellow with white patch on the falls. Beautifully branched on a magnificent 42-inch stalk.—*F. W. Cassebeer, New York, N. Y.*

BANDMASTER

A large blue on the order of EXCLUSIVE. A light blue with a grey tone.—*F. W. Cassebeer, New York, N. Y.*

A lovely big blue. Seems to grow well and do well wherever seen. Has drooping falls.—*Don Waters, Elmore, Ohio.*

A very clear tall light blue with well-shaped falls. A notable advance in light blues.—*Richard Goodman, Riverside, Ill.*

BERKELEY GOLD

A nice deep yellow. Seems to hold its color well.—*Don Waters, Elmore, Ohio.*

A larger, taller CALIFORNIA GOLD with a better stem. Nevertheless, I feel that there are number of better yellows available for the Middle West.—*Ralph M. Schroeder, Warrensburg, Ill.*

Not quite as deep in color as OLA KALA but better branched.—*Thomas Craig, Los Angeles, Cal.*

BIRCHBARK

A lovely white; one of the outstanding clumps in my garden.—*Don Waters, Elmore, Ohio.*

BLACK BANNER

A fine velvety deep purple with better form and growing habits than many of the iris in this color class.—*Mrs. F. P. Lowry, Newton, Mass.*

Not as rich or colorful as INDIANA NIGHT but has the advantage of a better stalk.—*F. W. Cassebeer, Blauevelt, N. Y.*

BLUE GLOW

On a two-year plant this iris really did glow, and in spite of poor branching the flowers were well spaced along the stem.—*Ralph M. Schroeder, Warrensburg, Ill.*

One of the finest of Col. Nicholls' many good late blooming varieties. Large, imposing, and colorful blossoms on the dark side that nevertheless live up to their name. Cannot understand why some dealer does not formally introduce it.—*F. W. Cassebeer, Blauevelt, N. Y.*

A magnificent violet blue self with fine gold beard. Seems to have everything, good branching, fine form and great garden value. Should be introduced.—*Richard Goodman, Riverside, Ill.*

BLUE HAWK

A nice dark blue intermediate.—*Ralph M. Schroeder, Warrensburg, Ill.*

BLUE ZENITH

As seen in Mr. Zink's garden, this blue blooming on laterals made a fine clump. It has height, good branching and clean color, with flowers of good size.—*John A. Buneaux, Chicago, Ill.*

I think this is near the top as a medium blue bitome.—*Ralph M. Schroeder, Warrensburg, Ill.*

BRIDESMAID

A very good white if it performs ever year as it did this year.—*Don Waters, Elmore, Ohio.*

BRIGHT MELODY

An excellent small, low growing iris of an unusual purple shade.—*Ralph M. Schroeder, Warrensburg, Ill.*



F. W. Cassebeer

Bearded iris are prominently displayed in the garden of Mrs. Junius B. Fishburn, our vice-president's mother.

BROWN THRASHER

Grew taller, 32 inches in one garden, than I had seen it before. Color good but form poor.—*Ralph M. Schroeder, Warrensburg, Ill.*

BRYCE CANYON

Aptly named for Utah's scenic wonder—brownish tan with a slight red tone to the standards, particularly from a distance. Unfortunately the stems are inclined to be weak.—*F. W. Cassebeer, New York, N. Y.*

Well named. Its rich red-orange shades remind one of the pinnacles and castles of that place. An attractive flower that everyone notices.—*H. W. Knowlton, Auburndale, Mass.*

BUTTERCUP LANE

A nice large yellow with a lovely wide beard, but on short stems, which detracts from its worth.—*Don Waters, Elmore, Ohio.*

CALIFORNIA TREK

My choice in yellows from California breeders.—*Thomas Craig, Los Angeles, Cal.*

CAPTAIN WELLS

One of the best dark red selfs. Good stalk and branching.—*Richard Goodman, Riverside, Ill.*

Lovely dark red with fine form. Burns in moderate sun.—*Carl C. Taylor, San Bernardino, Cal.*

CARILLON

As seen on a one-year plant it was rather dull in color.—*Ralph M. Schroeder, Warrensburg, Ill.*

CASA MORENA

A rich brown iris with curving falls which appeals to me very much. The pigment is put on with a heavy brush.—*W. H. Knowlton, Auburndale, Mass.*

CHAMOIS

A robust ivory buff that attracts attention and a desire to own some of it.—*F. W. Cassebeer, Blauvelt, N. Y.*

A vigorous grower of form and character that would be a winner in a deep yellow.—*Charles M. Carruth, Worcester, Mass.*

A fine warm tan and buff blend with broad falls.—*W. H. Knowlton, Auburndale, Mass.*

CHANTILLY

A lilac pink, picoteed not only on the standards but on the falls and style arms. A very interesting iris.—*Don Waters, Elmore, Ohio.*

Pink standards and falls with tips of standards very ruffled. A yellow tinged haft makes it very attractive.—*Richard Goodman, Riverside, Ill.*

CHICORY BLUE

Good color but definitely tender.—*Ralph M. Schroeder, Warrensburg, Ill.*

CHIEF POKING FIRE

Chief attraction is the colorful standards; falls are not so clear nor so good as those of **FLAMELY** or **ACTION FRONT**, both of which it closely resembles. Looks very red from a distance.—*F. W. Cassebeer, New York, N. Y.*

Got himself covered with soot and ashes.—*Ralph M. Schroeder, Warrensburg, Ill.*

CHIPPEWA

Clear color but **CORITICA** and **FRECKLES** seem to have more fire.—*Ralph M. Schroeder, Warrensburg, Ill.*

CHIVALRY

This iris was doing itself proud in Mr. Hall's garden. Among its good qualities, it has a metallic coloring that makes it stand out in the medium blues.—*John A. Buneaux, Chicago, Ill.*

A very nice deep blue iris.—*Don Waters, Elmore, Ohio.*

Very blue medium self. Standards and falls ruffled. Somewhat bunched as I saw it.—*Richard Goodman, Riverside, Ill.*

CONCERTO

A dark plum color; very rich.—*Don Waters, Elmore, Ohio.*

COPPER GLOW

A brilliant iris even richer and brighter than **BRYCE CANYON**.—*W. H. Knowlton, Auburndale, Mass.*

COPPER PINK

A big, bold pink blend that does not establish itself too quickly but is worth waiting for.—*Don Waters, Elmore, Ohio.*

Would be the pinkest of all the iris if it were not for the heavy brown shadings at the haft, which markedly detract from its otherwise fine color.

Its habit of growth is none too good as its buds are inclined to snake.—*F. W. Cassebeer, New York, N. Y.*

COTILLION

Pure white with very well branched, sturdy stalks.—*F. W. Cassebeer, New York, N. Y.*

DEEP NIGHT

Here is a mulberry colored iris that is different from others in this color class. As I saw it, with three blooms opened at one time, it made a fine garden subject.—*John A. Buneaux, Chicago, Ill.*

DISPLAY

A lovely garnet red. Makes an impressive clump.—*Don Waters, Elmore, Ohio.*

DOWN EAST

Perhaps the build-up was too great. I was disappointed.—*Ralph M. Schroeder, Warrensburg, Ill.*

DREAMCASTLE

A dull orchid pink. HARRIET THOREAU seems better to me.—*Ralph M. Schroeder, Warrensburg, Ill.*

DREAM GIRL

Very close to true pink in color.—*Charles M. Carruth, Worcester, Mass.*

ELEGANS

Lovely pale yellow on 30-inch stalks. Grows well and blooms well in my garden.—*Carl C. Taylor, San Bernardino, Cal.*

ELMOHR

Bold and dominating for garden effect.—*Thomas Craig, Los Angeles, Cal.*

ESQUIRE

Fine dark blue with nice form and good stem.—*Carl C. Taylor, San Bernardino, Cal.*

ETOILE D'OR

Very well branched tall yellow, good for garden effect.—*F. W. Cassebeer, New York, N. Y.*

EXQUISITE

This is the clearest seashell pink that I have seen. Rounded flaring falls without veining, tangerine beard. The flower has a luminous quality and is most attractive.—*H. W. Knowlton, Auburndale, Mass.*

FANTASY

One of the outstanding iris I saw this year. It is pinkish lilac in color, with a tangerine beard. Has a wide haft and is fine in every respect.—*Don Waters, Elmore, Ohio.*

Orchid pink with a tangerine beard. Very good form and substance withstanding heavy thunderstorms.—*Richard Goodman, Riverside, Ill.*

FIRECRACKER

A bright yellow and red plicata. Well named.—*Don Waters, Elmore, Ohio.*

A showy iris that calls one to it.—*Charles M. Carruth, Worcester, Mass.*

FLORA ZENOR

In Los Angeles it is outstanding for vigor. As for color one could ask for a smoother finish, but nevertheless I find it effective in the garden and in the house.—*Thomas Craig, Los Angeles, Cal.*

FORTUNE'S FAVOR

Tannish buff standards, with falls flushed with lavender and brown near edges. Nice blend. The new English variety, MARY SHORE, has the same general color combination but is a coarser flower.—*F. W. Cassebeer, New York, N. Y.*

A glistening tan iris with ruffled semi-flaring falls on which there is a brilliant flush of lavender. Both substance and branching are excellent on this striking iris.—*Mrs. F. P. Lowry, Newton, Mass.*

FRANCELIA

A nice yellow, very much like SPUN GOLD in color; has white venations at the haft.—*Don Waters, Elmore, Ohio.*

Not quite as smooth as some, but a good yellow.—*Ralph M. Schroeder, Warrensburg, Ill.*

A deep velvety yellow of refined form which makes even SPUN GOLD look dull.—*H. W. Knowlton, Auburndale, Mass.*

FRECKLES

A nice yellow plicata for the garden. An all-over pattern of cinnamon on yellow.—*Ralph M. Schroeder, Warrensburg, Ill.*

FULL MEASURE

Another good yellow with fine branching, substance, and form. Not too tall, 33 inches.—*Richard Goodman, Riverside, Ill.*

GARDEN FLAME

Well named; very bright and rosy.—*Don Waters, Elmore, Ohio.*

One of the lighter reds, and one of the brightest in the garden.—*Ralph M. Schroeder, Warrensburg, Ill.*

GARDEN GLORY

One of the smoothest iris I have seen. Comparable to THE RED DOUGLAS for color. Not tall.—*Ralph M. Schroeder, Warrensburg, Ill.*

GAYOSO

A very dirty yellow this year. Seems as though I saw it better in 1941.—*Ralph M. Schroeder, Warrensburg, Ill.*

An unusual example of deterioration in an iris. As it flowered in the past two seasons its much streaked and muddled blossoms bear little resemblance to the clear bright yellow blooms when first introduced.—*F. W. Cassebeer, Blauvelt, N. Y.*

GAY TROUBADOUR

A bright cinnamon, a color which adds to any collection.—*Don Waters, Elmore, Ohio.*

GOLDBEATER

An excellent dark yellow that stands out as a very bright spot in the garden. Good substance and not too large. Seems to bloom well in the middle West and should be very popular when distributed more.—*Richard Goodman, Riverside, Ill.*

One of the best medium yellows. A large, smooth flower.—*H. W. Knowlton, Auburndale, Mass.*

GOLDEN AGATE

One of the best spurias. A rich golden yellow with falls sharply edged with a very dark brown. Stunning.—*Thomas Craig, Los Angeles, Cal.*

GOLDEN MAJESTY

Best all-around yellow for the average garden. Always seems to be good in a clump.—*F. W. Cassebeer, New York, N. Y.*

It makes a gorgeous clump and is a strong grower. Consistent bloomer.—*H. W. Knowlton, Auburndale, Mass.*

GOLDEN RUSSET

Here is one of Dave Hall's seedlings that is starting out with a bang. As its name implies, it is a clean golden russet. It has flowers of great size.—*John A. Buneaux, Chicago, Ill.*

Very large and fine flowers, 7 in. high and 9¼ in. wide when spread. Beautifully flushed haft with falls 3½ in. wide. Golden buff standards and slightly darker falls. Fine branching on a good stalk.—*Richard Goodman, Riverside, Ill.*

GOLDEN MORN

One of the best yellows from Prof. Essig's new introductions. A clean, smooth flower of fine form and substance. Excellent branching with many blooms.—*Mrs. F. P. Lowry, Newton, Mass.*

GRACE BALLARD

A very desirable blended pink from Sass that grows well in California.—*Thomas Craig, Los Angeles, Cal.*

GRAND CANYON

As seen in Mr. Alverstrom's garden, this plum colored blend was in a class by itself.—*John A. Buneaux, Chicago, Ill.*

It appeared more colorful and attractive this past season than ever before.—*F. W. Cassebeer, New York, N. Y.*

Much needed for variety in the garden. Should be in half shade to bring out the blue shadows in its dark red falls. It is at its best then. Bright sunshine hides this blue coloring.—*Richard Goodman, Riverside, Ill.*

GREAT LAKES

Still looks very gray to me, especially beside others in its color class.—*Richard Goodman, Riverside, Ill.*

GYPSY

This is "the variegata." I like it though most variegatas irk me.—*Ralph M. Schroeder, Warrensburg, Ill.*

HARRIET THOREAU

Cool orchid. A fine flaring flower.—*Don Waters, Elmore, Ohio.*

A yellow beard sets off this flower to better advantage than DREAM-CASTLE.—*Ralph M. Schroeder, Warrensburg, Ill.*

HELEN MCGREGOR

An outstanding light blue iris with exceptional form and substance. A beautiful iris.—*Mrs. F. P. Lowry, Newton, Mass.*

The first light blue that I have seen without a trace of lavender in its coloring. Distinctive in form as well as color. A real topnotcher.—*F. W. Cassebeer, Blauvelt, N. Y.*

The stand of this iris in Dr. Graves' garden marked it as one of our

finest light blues. Tall stalks, vigorous, fine branching, rounded flowers of clear blue and perfect form. It is much bluer than AZURE SKIES or CLOUDCASTLE.—*H. W. Knowlton, Auburndale, Mass.*

HIT PARADE

One of the best of the pink series. It has clean pink standards with buff pink falls.—*John A. Buneaux, Chicago, Ill.*

A good seashell pink.—*Don Waters, Elmore, Ohio.*

HOOSIER SUNRISE

Good form, substance, and smooth color but not as interesting as INDIANA SUNSET.—*Ralph M. Schroeder, Warrensburg, Ill.*

Pleasing mauve pink and yellow blend with vigorous growth.—*F. W. Cassebeer, Blauvelt, N. Y.*

INDIANA NIGHT

Received my vote for the Dykes this year. Every stalk is an exhibition one.—*Don Waters, Elmore, Ohio.*

Very good in a cool year.—*Ralph M. Schroeder, Warrensburg, Ill.*

Surprisingly good. Better in many respects than SABLE, with coloring almost as rich.—*F. W. Cassebeer, Blauvelt, N. Y.*



F. W. Cassebeer

Helen McGregor, the outstanding light blue of the 1945 season.

About the best of the dark blues that I have seen. Being late, it also extends the season, whereas SABLE is early.—*Richard Goodman, Riverside, Ill.*

INDIANA SUNSET

A brilliant combination of gold, pink, and yellow. A fine garden flower though slightly lacking in substance.—*Ralph M. Schroeder, Warrensburg, Ill.*

JASMINE

The smoothest yellow but not a very robust plant.—*F. W. Cassebeer, New York, N. Y.*

The best yellow in Mr. Hall's garden. I think it is one of the best in its color class.—*John A. Buneaux, Chicago, Ill.*

Form and color excellent.—*Ralph M. Schroeder, Warrensburg, Ill.*

This smooth yellow self pleased me very much. Beard almost same color. no veining.—*H. W. Knowlton, Auburndale, Mass.*

KATHARINE FAY

It has been my privilege to see this fine white in bloom for the past three years. This year in Mr. Zink's garden, it repeated its past superior performances. Fine form, good branching and with eight buds to the stalk, it made a gorgeous display.—*John A. Buneaux, Chicago, Ill.*

Lovely ruffled white.—*Don Waters, Elmore, Ohio.*

Shows a disliking for cold weather but was better than any other white in commerce in the Middle West.—*Ralph M. Schroeder, Warrensburg, Ill.*

After seeing this one for three years I still think it is in every way the best of the whites.—*Richard Goodman, Riverside, Ill.*

A white iris with a white beard lightly tipped with gold; domed standards, flaring falls of heavy substance giving the appearance of a warmer white than the standards.—*H. W. Knowlton, Auburndale, Mass.*

KATY

A soft creamy yellow of smooth texture. Blessed with a long season of bloom.—*F. W. Cassebeer, Blauvelt, N. Y.*

KEARSARGE

A light blue self with fine form and heavy substance. The frilled flower has a distinct silver edging. Good branching. Another fine blue from Dr. Graves' garden.—*Mrs. F. P. Lowry, Newton, Mass.*

KENTUCKY SUNSHINE

I do not care for it.—*Don Waters, Elmore, Ohio.*

L. MERTON GAGE

Approaching the not-yet-attained pink.—*Charles M. Carruth, Worcester, Mass.*

LADY LOVE

White with a tint of coral. Best shaped flower of any of the pink toned I have seen though it is not so deep in color. Subtle effect from a distance. Nice flower.—*F. W. Cassebeer, New York, N. Y.*

Not really pink.—*Ralph M. Schroeder, Warrensburg, Ill.*

LADY MOHR

Impressive. Everyone will want it eventually.—*Don Waters, Elmore, Ohio.*

Most unusual but displeasing to me.—*Ralph M. Schroder, Warrensburg, Ill.*

Exotic in its beauty. Color is a throwback to its illustrious ancestor, *I. gatesii*.—*F. W. Cassebeer, Blauvelt, N. Y.*

A tall stately iris. Gray white with olive green markings. Something entirely new in oncobreds. It interests me very much and is an iris to admire as a specimen stalk close at hand.—*H. W. Knowlton, Auburndale, Mass.*

A very different and lovely WILLIAM MOHR seedling whose color is blonde. Fine in every way.—*Carl C. Taylor, San Bernardino, Cal.*

A near perfect iris. Tall, and exceptionally well branched for its type; but it is the warm blending and subtle pattern of color that makes this iris so desirable.—*Thomas Craig, Los Angeles, Cal.*

LADY NAOMI

An impressive plicata. Very large, has good shape.—*Don Waters, Elmore, Ohio.*

Oddly stippled plicata, not particularly attractive.—*F. W. Cassebeer, New York, N. Y.*

LADY OF SHALOTT

White with rose pink dots. A very nice plicata.—*Ralph M. Schroeder, Warrensburg, Ill.*

LAKE BREEZE

This fine blue was repeating its excellent performance of last year.—*John A. Buneaux, Chicago, Ill.*

LAKE HURON

Looks like the bluest iris in the garden. A poorly formed flower with bad haft reticulations.—*F. W. Cassebeer, New York, N. Y.*

A blue with coarse texture and poor substance.—*Carl C. Taylor, San Bernardino, Cal.*

LAKE SHANNON

A medium blue self with beard of same color. There is a delicate veining throughout the iris of a slightly darker color which adds to its charm. The falls are wide and semi-flaring, slightly ruffled, excellent branching, and substance. Slight white markings deep in the throat.—*Mrs. F. P. Lowry, Newton, Mass.*

LARK SONG

An elegant and refined spuria. The soft and varied cream and yellow coloring leaves little to be desired. My first choice in spurias.—*Thomas Craig, Los Angeles, Cal.*

LOTHARIO

Somewhat of the color of AMIGO, but larger. Not quite so brilliant but an iris which will fit into the garden well. We need more of this type.—*Don Waters, Elmore, Ohio.*

LOUISE BLAKE

Taller this year than I had seen it before, but badly bunched and with darker shadings on the standards. I prefer LOTHARIO for color and, ex-

cept for size, AMIGO is better than either.—*Ralph M. Schroeder, Warrensburg, Ill.*

I have seen this iris often and consider it excellent, though not a world-beater. Its shortcomings are on the side of weak growth, certainly not a lack of distinctiveness. I feel that its charm lies in the clarity of its pale waved standards and the velvety richness of its falls. Those who insist on likening this iris to AMIGO are not very observant.—*F. W. Cassebeer, Blauevelt, N. Y.*

In my opinion not equal to AMIGO as I saw it growing. It bunches more and there is less substance which makes it somewhat floppy.—*Richard Goodman, Riverside, Ill.*

Neglecta with lovely rich color, and definite contrast.—*Carl C. Taylor, San Bernardino, Cal.*

LOVELY MELODY

This iris more than vindicated my previous judgment. While its garden effect at a distance is admittedly negligible, when viewed at close range this delicately colored plicata becomes one of the loveliest of all iris with fine large blossoms well placed on a tall sturdy stalk.—*F. W. Cassebeer, Blauevelt, N. Y.*

LYNN LANGFORD

A pink and yellow blend. It is large and fine. Very pronounced yellow on the haft.—*Don Waters, Elmore, Ohio.*

Another very clear orchid-pink self with golden haft and beard. Branching very good. Not too tall, a height needed in the garden.—*Richard Goodman, Riverside, Ill.*

MADAME MAURICE LASSAILLY

Still among the best of its kind.—*Thomas Craig, Los Angeles, Cal.*

MAJENICA

One of the outstanding iris in my garden this year, blooming over a long period. Has large salmony-pink blossoms of good texture.—*Don Waters, Elmore, Ohio.*

Is definitely fine, though it has so many sisters and cousins in Bluffton that it is difficult to make a choice among them in this pink blend class. Paul Cook knows how to put substance as well as beauty in his finely bred iris.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

Nice rose blend with good form except for the rather abrupt break in hanging falls.—*Carl C. Taylor, San Bernardino, Cal.*

MASTER CHARLES

In many respects similar to DEEP VELVET but more red toned.—*F. W. Cassebeer, New York, N. Y.*

This fine mulberry with its brown coloring on each side of the beard and its four-way branching is certain to go places when it gets well known.—*John A. Buneaux, Chicago, Ill.*

An impressive dark mulberry and brown iris, nicely shaped and carries a lovely sheen throughout the entire flower.—*Don Waters, Chicago, Ill.*

This is tops in the purple class.—*Ralph M. Schroeder, Warrensburg, Ill.*

MEXICO

Flower exceptional in its rich blended variegata colors and its full form. Stem a little short.—*Thomas Craig, Los Angeles, Cal.*

MING YELLOW

Still one of the best yellows for garden effect. Branches well, but this year the flowers seemed too large and substance thin.—*Richard Goodman, Riverside, Ill.*

MIOBELLE

A sure-fire blend that will be with us a long time.—*Charles M. Carruth, Worcester, Mass.*

MIOGEM

A brilliant deep raspberry and mulberry blend with a blue blaze in center of falls.—*H. W. Knowlton, Auburndale, Mass.*

MINNIE COLQUITT

An eye-arrester in the garden, but H.M. is high enough to rate it.—*Charles M. Carruth, Worcester, Mass.*

MIRABELLE

Huge but nothing else.—*Don Waters, Elmore, Ohio.*

MOONLIGHT MADONNA

Here is an iris in a class by itself. Delicately lovely, yet firm of substance and holds its dainty color in the hot sun. I like it more each time I see it, and that is many times a day in iris season.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

A reliable bloomer in Massachusetts. I like it better than Elsa Sass.—*H. W. Knowlton, Auburndale, Mass.*

MOONLIT SEA

Odd. With certain combinations would be very attractive.—*Don Waters, Elmore, Ohio.*

To my mind every garden needs this attractive variety. It needs bright sunshine to bring out its brilliance.—*Richard Goodman, Riverside, Ill.*

MOONTIDE

A deep yellow with soft brown overlay on the haft, and round velvety falls. Nice branching and strong stalk.—*H. W. Knowlton, Auburndale, Mass.*

A velvety deep yellow with warmth and glow. Fine form with broad falls on which there is a deeper blending of color. An iris which was greatly admired at Mr. McKee's.—*Mrs. F. P. Lowry, Newton, Mass.*

MOTHER LODGE

A large yellow iris with veinings of deeper yellow on either side of the unusually heavy bright orange beard. The flower is well balanced on heavy stalk with good substance and branching. Fine garden value.—*Mrs. F. P. Lowry, Newton, Mass.*

MOUNT HERMON

Like fine cloth this white will wear well.—*Charles M. Carruth, Worcester, Mass.*

After seeing it for three years I am convinced it is one of the best of our bluish whites.—*H. W. Knowlton, Auburndale, Mass.*

NEW SNOW

A continuation of Mr. Fay's work in the whites. It is taller and an entirely different flower from his KATHARINE FAY.—*John A. Buneau, Chicago, Ill.*

NIGHTINGALE

Glistening with a lovely glow in all the lights and shades of the garden, this flower is outstanding among all of Mr. Hall's russet and copper toned iris. Every visitor inquires what it is.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

Outstanding copper pink.—*Ralph M. Schroeder, Warrensburg, Ill.*

The color is very much like that of STARDOM. I like it a lot.—*Don Waters, Elmore, Ohio.*

OKLAHOMA

An outstanding iris of this season and near perfection in its blending of warm colors in a new plicata pattern.—*Thomas Craig, Los Angeles, Cal.*

OLA KALA

A very deep yellow; a nicely shaped flower. I wish it were a bit larger. However, it is well worth while.—*Don Waters, Elmore, Ohio.*

Very good in cool weather.—*Ralph M. Schroeder, Warrensburg, Ill.*

Too many people have rated this iris too high.—*Charles M. Carruth, Worcester, Mass.*

OLA KALA, FRANCELIA, and JASMINE rank at the top among the deep yellows.—*H. W. Knowlton, Auburndale, Mass.*

Outstanding for rich golden color.—*Thomas Craig, Los Angeles, Cal.*

ORANGE GLOW

A taller, more brilliant RADIANT, with fine branching; one of the best copper, red and tan blends. It really glows in the garden.—*H. W. Knowlton, Auburndale, Mass.*

OVERTURE

Very similar to Loomis' No. V-20 in color, size and shape of bloom but not so good as the Loomis seedling, which has a bright tangerine beard that sets it off very nicely.—*F. W. Cassebeer, New York, N. Y.*

PAINTED DESERT

Lovely blended colors, good form and substance, excellent stem.—*Carl C. Taylor, San Bernardino, Cal.*

Not as bright as I expected, but a beautiful color and a good plant.—*Thomas Craig, Los Angeles, Cal.*

PALE MOONLIGHT

A slightly light blue,—why is it not more often seen? Beautifully branched with its large blooms carried in candelabra form. A wonderful foil for FAIR ELAINE, GOLDEN TREASURE, or any pale yellow.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

PATH OF GOLD

A deep yellow dwarf with smooth, semi-flaring falls and rich orange beard, nine inches. A distinct addition to our early dwarfs. Blooms at the same time as TONY, a purple dwarf; and they make a striking combination.—*H. W. Knowlton, Auburndale, Mass.*

PATRICE

A delicate plicata. The standards are cream, the falls white; and both are lightly stippled with a rosy lavender. There is a flush of gold along the heavy midrib of the standards and on the haft of the wide semi-flaring falls.—*Mrs. F. P. Lowry, Newton, Mass.*

PEACH BLOW

A good plicata.—*Don Waters, Elmore, Ohio.*

PHANTOM LADY

A cross of PHANTOM and MADAME LOUIS AUREAU, this pink plicata of Mrs. Tobie's is very fine. White ground, back of falls pink, substance very good.—*H. W. Knowlton, Auburndale, Mass.*

PINK REFLECTION

Good color, excellent shape and substance.—*Don Waters, Elmore, Ohio.*

POT O' GOLD

The brightest yellow in Fishburn's garden. Brilliant color is enhanced by a definitely orange beard. Foliage, unfortunately, too tall for the stalks.—*F. W. Cassebeer, New York, N. Y.*

PRAIRIE SUNSET

A never-to-be-forgotten sight with twelve blooms on a three-year clump. The texture did not seem to be as good this year as it was previously.—*Don Waters, Elmore, Ohio.*

I never saw it better than this year, entirely deserving of the Dykes Medal. I hope it is beginning to like New England.—*H. W. Knowlton, Auburndale, Mass.*

PREMIER PEACH

A fairly large pink peach blend; has good substance.—*Don Waters, Elmore, Ohio.*

Very attractive new one with light creamy peach standards and falls. Stout stalks, well branched. Form and substance very good. Tangerine beard.—*Richard Godman, Riverside, Ill.*

RANGER

Bitone, slightly less purple than REDWARD and not as strong a contrast between the standards and falls.—*F. W. Cassebeer, New York, N. Y.*

One of the three best reds.—*Ralph M. Schroeder, Warrensburg, Ill.*

Perhaps the best red I have seen.—*Thomas Craig, Los Angeles, Cal.*

REDWARD

Richness of red color is particularly noticeable.—*F. W. Cassebeer, New York, N. Y.*

ROSE PEARL

I would describe it as a much improved AT DAWNING, with more subdued color. Has nice shape. A very pretty iris.—*Don Waters, Elmore, Ohio.*

RUSSET WINGS

On the color of STARDOM but a bit lighter and ruffled. An impressive flower.—*Don Waters, Elmore, Ohio.*

A good bright yellow copper iris of medium height.—*Richard Goodman, Riverside, Ill.*

A golden brown iris with flaring, ruffled falls. It is very attractive.—*H. W. Knowlton, Auburndale, Mass.*

SABLE

Still about our finest dark purple. I grow it between FAIR ELAINE and SNOW FLURRY.—*H. W. Knowlton, Auburndale, Mass.*

SANTA CRUZ

The veining completely covering the falls gives distinction to the flower. A new pattern.—*Thomas Craig, Los Angeles, Cal.*

SEA BLUE

A medium toned blue iris with remarkable branching. Similar to MISSOURI but taller, better branched.—*H. W. Knowlton, Auburndale, Mass.*

SKY MAID

Good medium blue with excellent garden value.—*Carl C. Taylor, San Bernardino, Cal.*

SHARKSKIN

A nice tailored true white, with flowers delicately poised on slender stalks; rapid propagator and a real top-notch. —*F. W. Cassebeer, New York, N. Y.*

This iris of Mr. Douglas' is proving its worth as one of our best whites. —*H. W. Knowlton, Auburndale, Mass.*

SHERIFFA

An exciting oncobred, rich and vibrant. The standards display a new color range that has heretofore been reserved for the mineral kingdom. Free flowering and rapid of increase.—*Thomas Craig, Los Angeles, Cal.*

SNOW CRYSTAL (Wills No. 24-42)

A very lovely lightly marked blue plicata. Flowers have good form. Stalk and growing habits questionable.—*F. W. Cassebeer, New York, N. Y.*

SNOW FLURRY

A large clump is a picture never to be forgotten. In mass, one is never conscious of its high branching which, after all, is a minor fault in this iris with so many good points of charm and beauty. Its long season of bloom (four weeks) increases its value.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

Grows well for me. I like its ruffled flowers placed alternately on stubby stalks. Has a long season of bloom.—*H. W. Knowlton, Auburndale, Mass.*

SOLID MAHOGANY

The smoothest, roundest flowered, deep mahogany red I have seen. Almost no veining.—*W. H. Knowlton, Auburndale, Mass.*

An outstanding dark iris.—*Thomas Craig, Los Angeles, Cal.*

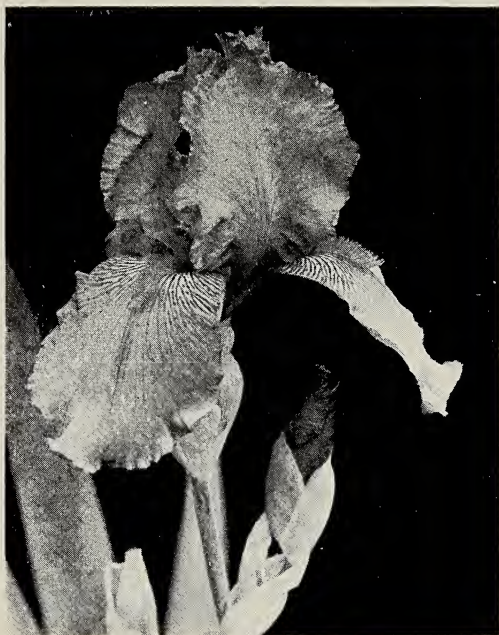
SOME LOVE

An oncobred that grows well in my garden. Has squat round form, short stalks, and flowers are almost white dotted with pinkish lavender. Visitors always speak of it.—*H. W. Knowlton, Auburndale, Mass.*

SONRISA

One of the best pink and tan blends with ruffled standards, nice flaring form, broad falls and good branching. Color is brighter than that of DAYBREAK.—*H. W. Knowlton, Auburndale, Mass.*

Seemed dull in color.—*Don Waters, Elmore, Ohio.*



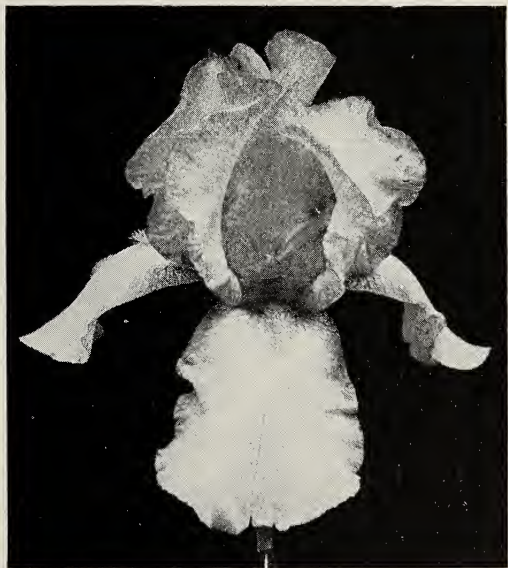
F. W. Cassebeer

*Two
Sturdy Iris
Originated by
Our President,
Jesse E. Wills*

Russet Wings is a charming golden buff with a heavy overlay of russet brown on the falls and a suffusion of the same color in the standards.

F. W. Cassebeer

Snow Crystal is considered by many as having the loveliest blue plicata markings of any iris of this group. It has a clear white ground.



SOUSUN

A fine lemon yellow from Prof. Essig. Very floriferous. I have enjoyed it in Mrs. Lowry's garden for several years.—*H. W. Knowlton, Auburn-dale, Mass.*

SPARKLING BLUE

A nice colored iris but in two different gardens it seemed to waterspot just as some iris do in wet seasons.—*Don Waters, Elmore, Ohio.*

SPRING CHIMES

A colorful clump of light russet; tall, well branched stalks.—*Don Waters, Elmore, Ohio.*

SPUN GOLD

Fully deserved the Dykes medal as even today it is hardly surpassed by any other dark yellow on the market. Quality of flower and its form makes it stand out in the garden.—*Richard Goodman, Riverside, Ill.*

Must have a special quality of growth in the Midwest that endears this variety to iris fanciers in that section. Here in the East I have only once—in Mr. Buttrick's garden—seen it rate the high praise that it has consistently received in the Midwest. Some years ago I was royally panned for suggesting that SPUN GOLD needs staking and that perhaps it was something less than a worldbeater. I contend that my original observation about its weakness of stem is still correct.—*F. W. Cassebeer, Blauvelt, N. Y.*

SUEZ

Not as good a flower as ELMOHR but may be of more value to the hybridizers.—*Ralph M. Schroeder, Warrensburg, Ill.*

SUN SPOT

Did not impress me too much. We have too many of this color in yellow.—*Don Waters, Elmore, Ohio.*

SUNSET HAZE

A live pinkish blend.—*Carl C. Taylor, San Bernardino, Cal.*

SUNSET SERENADE

Quite impressive and very much on the order of all the PRAIRIE SUNSET seedlings.—*Don Waters, Elmore, Ohio.*

Brilliant and fine in Berkeley.—*Thomas Craig, Los Angeles, Cal.*

TANAGER

Rose colored bitone with a bright yellow beard. Luminous standards.—*F. W. Cassebeer, New York, N. Y.*

THE ADMIRAL

A fine iris. I would say an improved MISSOURI but brighter in color.—*Don Waters, Elmore, Ohio.*

This blue is tops as a performer.—*Ralph M. Schroeder, Warrensburg, Ill.*

THREE OAKS and TEA ROSE

Pink blends very similar in color. THREE OAKS is a considerably larger flower and is more impressive. Both have a lavender flush on the center of the fall. Although TEA ROSE gives signs of being better branched, THREE OAKES is, in my opinion, the better of the two. Both are about 38" tall.—*F. W. Cassebeer, New York, N. Y.*

TEA ROSE is a quite different pink blend. Fine.—*Ralph M. Schroeder, Warrensburg, Ill.*

THREE CHEERS

A very fine iris, but when one has a deep love for WABASH it takes time to transfer interest to this newcomer.—*Silas B. Waters, Cincinnati, Ohio.*

THREE SISTERS

Gay but poor flower.—*F. W. Cassebeer, New York, N. Y.*

TIFFANJA

When it comes to height, branching, size and color, I should say this is the best I have seen.—*John A. Buneaux, Chicago, Ill.*

A yellow ground plicata which is near perfection. Has all good points.—*Carl C. Taylor, San Bernardino, Cal.*

TIP TOP

Pinkish lilac standards, with falls plicated same color on white ground. Suitable for the front line and fine for cutting.—*Richard Goodman, Riverside, Ill.*

TOBACCO ROAD

Blooming it for the first time, I find an unusual beauty in its fine form and color. The flower has remarkable substance, withstanding hot sun and winds.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

The best brown iris.—*Ralph M. Schroeder, Warrensburg, Ill.*

A sturdy brown of medium height and widely flaring falls. I like the iris but not its name.—*H. W. Knowlton, Auburndale, Mass.*

Short well branched stems, but beautiful golden brown flowers with ideal form.—*Carl C. Taylor, San Bernardino, Cal.*

VELVET MANTLE

Here was a seedling in Mrs. Fred Clutton's garden which had the color of RED GLEAM, with good height and branching, no haft venation and shaded brown each side of the beard. A very fine red.—*John A. Buneaux, Chicago, Ill.*

WORTHINGTON

An impressive rosy iris. It has fine shape and is apparently a good doer.—*Dan Waters, Elmore, Ohio.*

Barker No. 45-03 (Tanit)

A pleasing blend from BUCKSKIN and BROWN BETTY. The standards are a warm buff; the semi-flaring falls, a light vinaceous cinnamon. Extra heavy substance with branching below the middle of the stalk. Grows 42 inches tall.—*Mrs. F. P. Lowry, Newton, Mass.*

Barker No. 45-06

Golden yellow standards, falls a deep pink edged with a wide margin of golden yellow. Exceptionally wide and flaring falls. Heavy substance and good branching.—*Mrs. F. P. Lowry, Newton, Mass.*

Cook No. GGL

A large, well shaped white iris, with very thick substance and fine stalks.—*Don Waters, Elmore, Ohio.*

Cook No. 1-37

A mauve-pink bicolor. More of a contrast and brighter than AT DAWN-ING. A low, colorful clump at Fishburn's.—*F. W. Cassebeer, New York, N. Y.*

Cook No. 444

The best seashell pink that I have seen when it comes to shape and size. It is very impressive and bears watching.—*Don Waters, Elmore, Ohio.*

Cook Nos. 945 and 2045

Some of Mr. Cook's seashell pinks which bloomed for the first time this year. All of them have nice broad flowers with good substance, characteristics which seem peculiar to all of Mr. Cook's iris.—*Don Waters, Elmore, Ohio.*

Cook No. 2044

The reddest iris I have ever seen. A big, bold flower on good stalks.—*Don Waters, Elmore, Ohio.*

Cook No. 5742

An improved DAYBREAK, which is saying something! Color very similar but smoother and on a wider and more impressive flower.—*Don Waters, Elmore, Ohio.*

Cook No. 1144

Good. A bit pinker than No. 444 but not so impressive a flower.—*Don Waters, Elmore, Ohio.*

Cook No. 2082

A lovely rosy blend from the E. B. WILLIAMSON line.—*Don Waters, Elmore, Ohio.*

Cook No. 3143

A peach colored iris which is nice and tall and well shaped, as are all of Paul Cook's seedlings.—*Don Waters, Elmore, Ohio.*

Cook No. 4242

A fine blue, a bit bluer than GREAT LAKES, but a slightly different shade. Perhaps a little gray added to it.—*Don Waters, Elmore, Ohio.*

DeForest 1-41

Similar to CHAMOIS, near which it was growing in Mr. Buttrick's garden, but lighter in color. It has life which carries well in the garden.—*H. W. Knowlton, Auburndale, Mass.*

Essig No. 1617-42A

A soft cream iris with bright orange beard. Both standards and falls are deeply ruffled. A most attractive flower.—*Mrs. F. P. Lowry, Newton, Mass.*

Fay No. 42-5

A flaring blue that is deeper than CHIVALRY. Same color as BLUE ENSIGN but larger flower. BLUE ENSIGN, THE ADMIRAL and Fay No. 42-4 are almost identical.—*F. W. Cassebeer, New York, N. Y.*

Fay No. 43-4

A very fine dark violet self with dark blue beard tipped with gold. About

the best in its color class.—*Richard Goodman, Riverside, Ill.*

A very smooth purple self even to the beard.—*H. W. Knowlton, Auburn-dale, Mass.*

Fay No. 43-5

Pink standards and dark rose falls, with yellow haft. Brilliant effect in the garden. Would go well next to MOONLIT SEA.—*Richard Goodman, Riverside, Ill.*

Fay No. 44-13

This is a pure chrome yellow self with no haft venations and is a clean colored yellow.—*John A. Buneaux, Chicago, Ill.*

Fay No. 44-21

This peach pink with an intense tangerine beard showed more coloring than many of the new pinks.—*John A. Buneaux, Chicago, Ill.*

Fay No. 44-44

A fine light blue self with flaring falls.—*Richard Goodman, Riverside, Ill.*

Fay No. 44-57

Excellent cream white with golden haft. Extra good stalk and branching. Should be very popular.—*Richard Goodman, Riverside, Ill.*

Graves No. 38-87 C

Sister seedling of FRANCONIA; individual flower not as perfect but stalk tall and well branched and perfectly proportioned in a clump. Height, 46½". Nearly pure white. Appears to be a better performer in the same class as MOUNT WASHINGTON. Inconspicuous haft markings.—*F. W. Cassebeer, New York, N. Y.*

Graves No. 39-27

A smooth cream iris with exceptionally good form and substance. Combined with KEARSARGE in Dr. Graves' garden it made a most pleasing picture.—*Mrs. F. P. Lowry, Newton, Mass.*

Graves No. 43-47 (KILTIE)

A medium blue with wide semi-flaring falls. Smooth finish.—*Mrs. F. P. Lowry, Newton, Mass.*

"Graves' Blue" (at Fishburn's)

A powder blue self with very few haft markings; what there are, are dark—a blackish-brown. The beard gives a touch of yellowish-orange.—*F. W. Cassebeer, New York, N. Y.*

Hall No. 39-99

Nice lavender.—*F. W. Cassebeer, New York, N. Y.*

Hall Nos. 4101, 4205, 4417, 4426, 4450

All are very good seashell pinks containing no streaks on the falls.—*Don Waters, Elmore, Ohio.*

Hall No. 41-52 (SILVERTONE)

A blue with more flaring falls than BANDMASTER. I prefer it to BANDMASTER, although I think BANDMASTER is one of our best.—*Don Waters, Elmore, Ohio.*

A light blue with well-formed flowers, not too tall, charming in front of

NIGHTINGALE or the beautiful white KATHARINE FAY.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

Hall No. 42-01 (Jumbo)

An immense yellow and tan blend. Showy flower. Branching not very good.—*F. W. Cassebeer, New York, N. Y.*

Hall No. 42-28

Another very fine dark red, almost a self. Merits introduction.—*Richard Goodman, Riverside, Ill.*

Hall No. 4306

Flaring deep purple. Very rigid flower. Not as much of a bicolor as LORD DONGAN.—*F. W. Cassebeer, New York, N. Y.*

Hall No. 44-15

A true black-red, and very choice. Gold beard. Hope it can be introduced soon.—*Richard Goodman, Riverside, Ill.*

Hall No. 44-20

A large deep red with a minimum of veining; a good one.—*Don Waters, Elmore, Ohio.*

Hall No. 44-28

I think this is the pinkest iris I have seen to date.—*Don Waters, Elmore, Ohio.*

Hall No. 44-35

A large-size mahogany red with a black sheen on the falls. A fine new red.—*John A. Buneaux, Chicago, Ill.*

A beautiful dark mulberry with wide falls and nicely shaped standards. Very good.—*Don Waters, Elmore, Ohio.*

Hall No. 44-40

A very good variegata with clean colors, gold standards and very dark maroon falls without any veining. It is the best variegata I have seen.—*Don Waters, Elmore, Ohio.*

Hall No. 44-60

An impressive light clover color with tangerine beard.—*Don Waters, Elmore, Ohio.*

Heller No. 14-07

A yellow with a distinct and beautiful olive cast.—*Thomas Craig, Los Angeles, Cal.*

Knowlton No. 41-60B (SUZABELLE)

A frilled plicata of lightest cream with edges delicately stippled with raspberry pink. The falls are wide and semi-flaring. Good substance and branching. This attractive iris is a sister seedling of SUZETTE.—*Mrs. F. P. Lowry, Newton, Mass.*

McKee No. 43-60

A very large golden yellow with a white patch on the falls. A bit coarse, especially in the standards.—*F. W. Cassebeer, New York, N. Y.*

Mitchell No. 0-126-2

A plicata not large or showy but of highest.—*Thomas Craig, Los Angeles, Cal.*

Nesmith 42-1-B

A seedling of great promise. A large, smooth, finished, light peach flower, self-colored even to the beard, with a beautiful coral bud.—*Harold W. Knowlton, Auburndale, Mass.*

The most intriguing new iris for color that I saw in the 1945 season. A light peach self with great clarity of tone. Its form, branching and habits appear to be good also.—*F. W. Cassebeer, Blauvelt, N. Y.*

Nies No. 436

Smooth rich red-purple with bronze beard.—*Carl C. Taylor, San Bernardino, Cal.*

Nies No. 457

Cream with pale yellow standards. Good form and substance.—*Carl C. Taylor, San Bernardino, Cal.*

Sass 40-349

A larger, taller PINK RUFFLES with the orange beard slightly more prominent.—*F. W. Cassebeer, New York, N. Y.*

Sass No. 140

Yellowish tan with suffusion of brownish-red in the standards and overlay. Very fine color effect in fresh blossom. Tends to fade. Finely branched stalks.—*F. W. Cassebeer, New York, N. Y.*

Smith No. 2-10

Pale greyish-lavender-blue with suffusion of deeper lavender on falls.—*F. W. Cassebeer, New York, N. Y.*

Walker No. 2-45

Lovely red-lilac with blue beard. Good form.—*Carl C. Taylor, San Bernardino, Cal.*

D. Waters No. 243

A fine deep yellow of beautiful form and clear color, and with widely branched stalks. Truly a masterpiece.—*Mrs. Silas B. Waters, Cincinnati, Ohio.*

White No. 3e-45-13

Cream ground rose plicata of fine quality.—*Thomas Craig, Los Angeles, Cal.*

White 14E42-8

A light lavender-blue with falls heavily veined with maroon. Very tall stalk for an oncobred. Bizarre effect. Grows 37½ inches tall.—*F. W. Cassebeer, New York, N. Y.*

OUR MEMBERS WRITE

Favors Test Gardens

■ IN BULLETIN No. 92 (February 1944), R. J. Comstock of St. Charles, Ill., mentions a matter which I think is of great importance—the establishment of display or test gardens. I have not yet seen a reply to his article but I am pleased to give my support to his idea.

So far as I know, there is no official test or display garden where members may send their productions to be tested. Other societies have their test gardens and these gardens are proving their worth. I have visited the official rose test garden at Virginia Polytechnic Institute, Blacksburg, Va., and it is doing a real job of testing roses. Of course, the larger breeders do not need this sort of thing so much as do the smaller breeders as they have their own public display gardens.

There are many very fine iris that we never see or hear about simply because they are produced by small breeders and never get publicity. A. I. S. judges rarely visit these small gardens. If we could have an official test garden, centrally located, which our judges might visit each season and where they might see and evaluate all the seedlings being tested, it would be a great help to all of us and a big boost for our Society. I feel sure we could get one in this area.

In looking over the list of standing committees, it seems to me that the proper one to take up the matter of test gardens would be the Membership and Publicity Committee. While this subject does not concern membership, it does have to do with publicity. The creation of such gardens would make for great interest and give much favorable publicity, resulting no doubt in a larger membership.

I also note in this same article that Mr. Comstock said he knew less than 50 per cent of the iris listed in Kenneth Smith's Symposium. Mr. Comstock is not the only person in that predicament. A centrally located test garden would undoubtedly go a long way to solving this problem.

Is anyone really interested?

—DR. LEWIS CLEVINGER

Kirksville, Mo.

COMMERCIAL DIRECTORY

All of the dealers listed below are members of The American Iris Society. If you are buying iris for your garden, it should be your particular pleasure to make your purchases from the dealers who have worked with and supported your Society. Your officers and directors invite your special attention to this list. They also ask a favor. When you order, tell the dealer you saw his name in the BULLETIN and do him a favor by not asking for a catalog unless you mean business.

MILLIKEN GARDENS

385 W. Colorado Street

Arcadia

California

IRIS—HEMEROCALLIS

May we send you our 1944 list?

JORDAN'S

IRIS GARDEN

Iris of Quality

MRS. W. H. JORDAN

3225 Hardeman St., Ft. Worth, Tex.

KENWOOD IRIS GARDENS

Iris, Hemerocallis, Peonies, Poppies

MRS. J. F. EMIGHOLZ

R.R. 10, Sta. M Cincinnati 27, Ohio

MAX SCHLING SEEDSMEN

Introducer of Bearded Iris

RAJAH AND KATY (Smith) and

JEWELITE (Cassebeer)

618 Madison Ave., New York, N. Y.

WILD GARDENS

La. Iris, Native Plants, Rare Bulbs

MRS. RUTH M. DORMON

Rt. 3, Box 70, Old Mooringsport Rd.,
Shreveport, La.

IRISNOLL

FRED DE FOREST

Hybridizer and Grower

Route 1

Monroe, Oregon

Descriptive List Sent on Request

CARL SALBACH

IRIS AND GLADIOLUS

Vegetable and Flower Seeds

650 Woodmont Ave., Berkeley 8, Calif.

IRISES AND DAFFODILS

*Specializing in the Kenyon Reynolds
Daffodils and Pacific Coast Irises*

LENA LOTHROP

1595 Glasgow Ave., San Bernardino, Calif.

IRIS and DELPHINIUMS

CHOICEST FLOWER SEEDS

Free Catalog Ready in June

PUDOR'S INC.

Puyallup, Washington

THE IRIS GARDEN

Only the Finest Bearded Iris

DOROTHY STONER

MERRIAM

KANSAS



IRIS - PEONIES

Homero callis, Poppies

Large collection—1600 vars.

C. F. WASSENBERG

Van Wert, Ohio

FAIRMOUNT GARDENS

Iris, Hemero callis, Oriental Poppies

Introducer of many of the best iris
and hemero callis

MRS. THOMAS NESMITH

Lowell, Mass.

LONGFIELD IRIS FARM

Williamson & Cook Originations

IRIS AND PEONIES

BLUFFTON

INDIANA

MORGAN'S GARDENS

LATEST and BEST in IRIS

66th and Blue Ridge Blvd. Route 3
Kansas City, Missouri

Maple Valley Iris Gardens

Mrs. C. G. Whiting

Hybridizer and Grower of Fine Iris

MAPLETON

IOWA

LYON IRIS GARDENS

New and Choice Irises

18831 CALVERT STREET

RESEDA, CALIF.

IRIS CHECK LIST 1939

Lists 19,000 names of iris and parent-
ages; over 500 pages.

\$3 to members; \$4 to non-members
*Make check or money order payable
to American Iris Society, 821 Wash-
ington Loan & Trust Bldg., Washing-
ton, D. C.*

"HILL-SON"

LAFONTAINE, KANSAS

H. M. & Robert C. (1st Lt., Inf.)

Specializing in

IRISES

PEONIES

HEMEROCALLIS

*Irises—Dwarfs, Re-bloomers, Siberi-
ans, Spurias and choice Tall
Bearded.*

*Peonies—Doubles, Singles and Japs;
the best of the new and old
hybrids.*

*Hemero callis—Small in number but
choice in quality and vigor.*

A VERY SPECIAL OFFER

The Manual of the American Peony Society is a handbook of peony information obtainable in no other publication.

A limited stock is still available and another drastic reduction in price has been made. Membership in the Society and a copy of the Peony Manual can be had for \$4.65, or the Manual will be sent postpaid, while the supply lasts, for \$1.65. Circular of contents sent on request. This is a wonderful buy and stock should be depleted rapidly. Better get a copy while they are still available. No second edition to be printed.

Four informative bulletins are issued yearly and are sent to all members. If interested, write for copy. Make all remittances to the American Peony Society and mail to

W. F. CHRISTMAN, Secretary

AMERICAN PEONY SOCIETY
NORTHBROOK, ILL.

YEAR BOOKS

OF

THE AMERICAN HORTICULTURAL SOCIETY

AMERICAN DAFFODIL YEARBOOKS, 1936, 1937, 1938—
50c a copy

DAFFODIL YEARBOOK, 1942—\$1.00

The 1942 issue is a joint publication with the Royal Horticultural Society, and contains the latest in daffodil news from Australia, Great Britain, New Zealand, Tasmania and the United States.

LILY BULLETIN FOR BEGINNERS, 1941—25c

AMERICAN LILY YEARBOOKS, 1939, 1940—\$1.00 a copy
1942—Price \$1.25

Your pleasure in iris will be stimulated by taking a good look at other fields. The books listed above offer you best opportunities, and at bargain prices. Much information is contained in each book, and there is no duplication. Write for information about membership in the Society.

Make checks payable to the American Horticultural Society, and send to 621 Washington Loan & Trust Bldg., Washington, D. C.

THE IRIS SOCIETY

(of England)

Application for membership in The Iris Society may be sent direct to the American Iris Society office. Make check for dues (\$2.85) payable to the American Iris Society. Send it to Howard R. Watkins, Secretary, 821 Washington Loan & Trust Bldg., Washington, D. C. Mark it plainly "For dues for The Iris Society (of England)" and print your name and address.

SMITHSONIAN LIBRARIES



3 9088 01961 0245